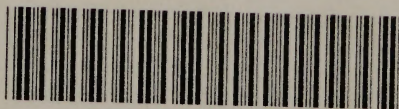




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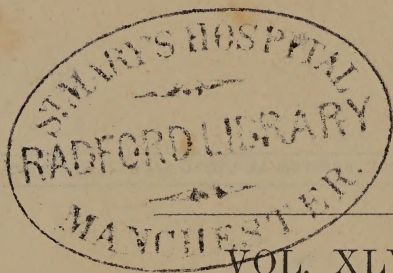








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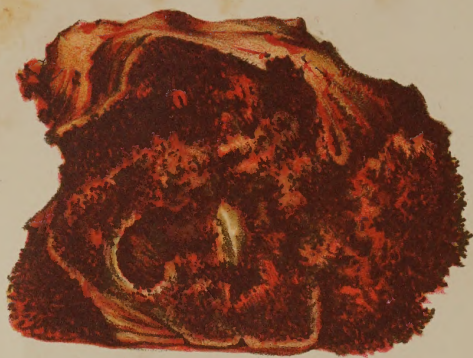
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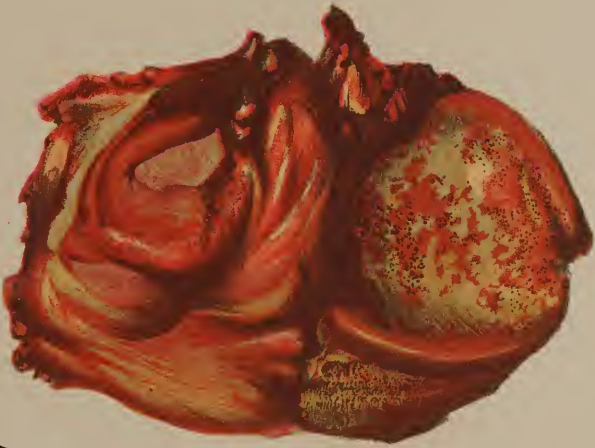
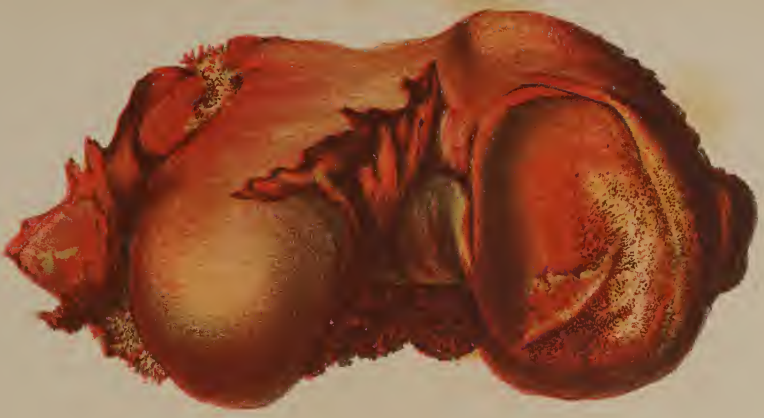


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FEBRUARY 1, 1868.

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PART I.  
ORIGINAL COMMUNICATIONS.

ART. I.—*Contributions to Practical Surgery.* By WILLIAM STOKES, jun., Surgeon to the Meath Hospital and County Dublin Infirmary; Lecturer on Surgery, Carmichael School of Medicine.

*On the Resection of Joints and Bones.*

- 1.—RESECTION OF THE ANKLE-JOINT.
- 2.—SUBPERIOSTEAL RESECTION OF THE ELBOW-JOINT.
- 3.—RESECTION OF THE KNEE-JOINT.
- 4.—RESECTION OF METATARSAL BONES.

THERE are few procedures in operative surgery which have so many warm supporters or such bitter adversaries as resections of the larger joints. This difference of opinion among surgeons in regard to the value of these operations is due to many circumstances, among which may be mentioned the frequent occurrence of unsatisfactory results, and the unlimited faith which so many surgeons have in the value of rest in the treatment of all forms of articular disease. No one could be more convinced of the value of rest than I am; but I cannot but think that the surgeon who relies solely on this in the treatment of many forms of articular disease, rejecting all idea of operative interference until the vital powers of the patient

become so seriously impaired as to render success in operating highly problematical, fails in duty to his patient, and to the cause of true conservative surgery. It is, doubtless, this tendency among surgeons to make operative interference the *dernier ressort* that has been so often the cause of want of success in these procedures, and brought them consequently into an ill-deserved disrepute. To the resection of the ankle-joint a special class of objections have been urged, based, first, on the mechanical difficulty of the operation; and secondly, on the difficulty, and, according to some, on the impossibility of determining, even approximately, the amount of disease that may have to be removed. With regard to the first of these, it is unnecessary to dwell, for no mechanical difficulty should ever deter the surgeon from performing an operation that may be of ultimate advantage to the patient; and with regard to the second, although it cannot be denied the cases are very rare in which carious disease of the ankle-joint is sufficiently localized to justify resection, yet, should the disease be found too extensive to indicate this procedure, there is then nothing to deter the surgeon from amputating at the ankle-joint after the manner recommended by Professor Syme or Pirogoff.

Owing to the recent researches, practical as well as theoretical, of Professors Langenbeck and Hancock on the great surgical importance of resection of the ankle-joint in cases as well of injury as of disease of that articulation, the subject naturally is regarded by the surgical profession as one worthy of deep care and consideration. I have little doubt, therefore, that the particulars of the case in which the operation was performed by me, for the first time in Ireland, and which I am about briefly to record, will, in no small degree, be of interest to my professional brethren. Before, however, discussing this case, it may not be considered unimportant or devoid of interest to glance briefly at some of the particulars of the earlier cases in which this operation was performed.

In a paper by Professor Langenbeck, which he kindly sent me, on some cases in which he performed resection of the ankle-joint for gun-shot injuries received during the Schleswig-Holstein campaign of 1864, and also by the late Professor Velpeau [*Med. Operat.* 2 T. p. 739], it is stated that the first case in which resection of the ankle-joint was performed was at the battle of Fontenoy, in 1745, by a surgeon named Réad. The case, however, although of extreme surgical interest, should, I think, hardly be recorded as an example of the resection of the ankle-joint in the ordinary acceptation of the



term. The following are some of the leading particulars of this remarkable case:—"Charles Amiens, a soldier belonging to the company of Gurerduc in the Beauvoisis Regiment, was struck, in the battle of Fontenoy, by a cannon ball, which carried off the lower extremity of the fibula. The inferior extremity of the tibia was fractured in several pieces, the injury also involving the astragalus, the ligaments, and other structures of the ankle-joint. The foot was completely displaced backwards and inwards. M. Réad's first idea was to amputate immediately, but owing to the entreaties of the patient not to do so, and there being no immediate danger, the operation was deferred. Several fragments of the bone were then extracted of the inferior extremities of both fibula and tibia, as well as some portions of the astragalus. The wound was then dressed, the foot being supported by a suitable apparatus, which was not removed for four days. No accident occurred during the patient's convalescence, which lasted about four months. When he left the hospital of Valenciennes to go to the Invalides, he was able to walk without any support. There was no re-formation of the portion of the fibula which had been removed."

The next case occurred in the practice of the elder Moreau, in 1792. The case was one of extensive caries of the left ankle, which was induced by a severe sprain the patient received about a year before coming under the care of M. Moreau. "There was a fistulous ulcer on each side of the joint, from which a sanious and fetid pus was discharged; and the probe being introduced through the openings, the articulating surface of the tibia, as well as that of the fibula, and the body of the astragalus, were felt to be bare. The foot and lower part of the leg were swelled. There was a dull pain in the diseased part, and the patient could not lean his weight on the limb."<sup>a</sup> As there is apparently great confusion and probable inaccuracy in the description of the operation, we shall not enter into any discussion as regards the procedure. The result, however, of this operation we may state; the patient was not "able to lean his weight upon the foot till the sixth month after the operation. During the seventh he used crutches. In the eighth month he could walk with a stick, and by the end of the ninth month he walked without any assistance whatever, and in such a way that he could do what he pleased!" It is to be regretted that although the result of the case is described as being "surprising," no mention is made as to

<sup>a</sup> Cases of Excision of Carious Joints. By P. J. Moreau. Trans. by J. Jeffrey, M.D., Glasgow, 1806.

whether any sinus or other evidence of existing disease remained after the operation. As a detailed account of the cases of greatest interest in which the operation of excision of the ankle-joint has been performed since the time of the Moreaus, has been given by Professor Hancock in his deeply interesting and valuable Lectures on the Surgery of the Human Foot, delivered at the Royal College of Surgeons of England in last June, it is unnecessary for me, on the present occasion, to give a renewed account of them. As far as I can determine, it appears that the operation has been performed fifty-one times, and of these thirty-eight have been successful, and thirteen unsuccessful, which gives about seventy-five per cent. of successful cases. This will be seen by a glance at the accompanying table, a great number of the cases in which I am indebted to Professor Hancock for kindly furnishing me with. I may mention in passing that the cases in this table include all those in which the operation was performed as well for injury as disease:—

EXCISION OF THE ANKLE-JOINT.

Name of Surgeon	Cases	Successful	Unsuccessful
Réad, . . .	1	1	0
The Moreaus, . .	2	2	0
Jæger, . . .	1	1	0
Gooch, . . .	1	1	0
Textor, . . .	1	1	0
Buchanan, . . .	1	0	1
Hancock, . . .	5	4	1
Jones, . . .	1	1	0
Statham, . . .	2	2	0
Catton, . . .	1	1	0
J. Holmes, . . .	3	2	1
Langenbeck, . .	9	8	1
Humphrey, . . .	2	2	0
Simon, . . .	1	0	1
Erichsen, . . .	5	3	2
Hussey, . . .	1	0	1
Morton, . . .	1	1	0
Canniff, . . .	1	1	0
Burnell, . . .	1	0	1
Paget, . . .	3	2	1
Canton, . . .	1	0	1
C. Heath, . . .	1	0	1
Moore, . . .	1	1	0
Davis, . . .	1	0	1
Delagarde, . . .	1	1	0
Neudörfer, . . .	1	1	0
Sédillot, . . .	1	1	0
Bœckel, . . .	1	1	0
	51	38	13

We may now proceed to discuss the particulars of the case in which I performed the operation of resection of the ankle-joint last April. H. M'G., aged twenty-seven, was admitted into the Meath Hospital, under my care, on the 10th of last April. He stated that about eight years previously he received a kick of a horse over the inner malleolus. The joint swelled after this, and was extremely painful. This seems to have subsided under suitable antiphlogistic measures. The swelling, however, never entirely disappeared. After some time abscesses and sinuses formed, which never healed, and from which purulent matter, varying as well in consistence as in quantity, continually oozed up to the time of his admission into hospital. In other respects the patient was in good health, though, as might be expected, much debilitated by the long confinement and the continuous discharge from the sinuses. On probing these, I found that the direction of all was towards the astragalus, a circumstance which went far in making me come to the conclusion that the disease was probably limited in extent, and possibly localized in the astragalus and articulating surface of the tibia. Having formed this opinion, I deemed the case a fitting one for excision, and I proposed it to the patient, who gladly acceded, and, my colleagues concurring in the propriety of the operation, I performed it on the morning of the 29th of April, in the following manner:—

A long vertical incision was made along the posterior edge of the fibula, and then brought obliquely forwards and inwards towards the internal cuneiform bone. A somewhat triangular-shaped flap was then dissected backwards, a step in the operation which was attended with much difficulty, owing to great matting and thickening of the soft parts. This having been done, the next step was to excise the end of the fibula. This was effected with great difficulty, owing to the fibula being firmly ankylosed below with the tibia. The outer portion of the extremity of the fibula was found softened and diseased. A chain saw was then passed round the fibula about two inches and a-half above its extremity, and the bone divided. Owing, however, to the firm ankylosis below, it could not be removed until a section was made, separating it from the tibia, by one of Langenbeck's small resection saws. This having been done, the excised portion of the fibula, with a small portion of the outer edge of the tibia, to which it was attached, was easily removed. It then was obvious that not only the extremity of the tibia, but also the astragalus, was extensively diseased. The greater portion of the latter was removed, chiefly by the straight and rectangular gouges. As



we saw then that the inner malleolus was extensively engaged, we deemed it advisable to attempt the dislocation of the tibia outwards through the wound. Mr Porter, whose assistance at this and every stage of the operation was invaluable, made the attempt to dislocate the extremity of the tibia through the wound. It was found impossible. More of the diseased structures were then removed, sometimes by the gouges, Langenbeck's and Hey's resection saws, and also by an ingeniously-constructed American forceps, of great power, which was kindly lent to me by my friend Dr. E. O'Grady. A second, and then a third attempt was made to bring the extremity of the tibia through the wound. The last attempt proved successful, and our efforts were well rewarded, for it was plain that had we trusted to the instruments we had previously been using, we never could have removed all the disease we found situated in and about the inner malleolus. The accompanying chromolithograph, executed by Mr. Lewis with his accustomed skill, from a drawing by Mr. Burnside, represents accurately the condition of the diseased osseous structures which I removed. There was no necessity found for removing the periosteum by any of the raspatoria for the purpose, for it was found detached and thickened, lying loosely on the surface of the bone. A slice of the tibia, about a quarter of an inch in thickness, was then removed by an ordinary amputation saw, and the resection was then complete. One vessel only had to be secured, which I did by acupressure, adopting the method of "half rotation," or first variety of the fifth or Aberdeen method. Nothing could have been more entirely satisfactory than the way the hemorrhage was arrested by this procedure. A piece of dry lint was then placed in the wound, and the edges brought together by five or six points of silver wire suture. A gypsum bandage was then applied from the toes to the junction of the upper with the middle third of the leg, in the manner I have already described in the *Dublin Quarterly Journal* for May, 1865, the particulars of which I need not therefore now enter into. The patient was then placed in bed, with the limb slightly elevated, and ordered forty drops of Battley's sedative, in a little sherry.

8 P.M.—Pulse 136; suffered from considerable abdominal pain during the day; no sleep as yet; no pain in ankle. Ordered a draught with sol. mur. morphiae, gtt. xxxv., in an ounce of cinnamon water.

April 30, second day, 10 A.M.—Had a restless night; pulse 140; had several attacks of retching during the night; ordered iced beef-

tea and champagne to be taken in small quantities every second hour; also, the following draught to be taken at once:—

℞      Liq. mur. morphiæ, gtt. xxxv.  
       Spt. chloriformi.  
       Tinct. cort. aurant, aa ʒss.  
       Aquæ lauro cerasi, gtt. xx.  
       Aquæ, ʒvii.

Fiat haustus. ss.

4 P.M.—Found the patient much quieter, but pulse is still 140. I cut a large oval-shaped window in the gypsum bandage over the situation of the wound, and then applied, with a large camel-hair brush over the bandage, a solution of Dammar resin in sulphuric ether, to prevent the action of the water in the continual bath from softening the gypsum. The limb was then placed in the bath, being supported in it by a coarse net. This gave the patient great relief; the pulse fell almost instantaneously to 120.

May 1, 9 A.M.—Had a quiet night; pulse 120, full and strong; no pain in ankle; had several hours sleep.

3.—Pulse 100; skin cool; tongue moist. Free suppuration from the wound; appetite good.

On May 14, I took the limb out of the bath, removed the gypsum bandage, and placed the limb in a box splint. The wound was then dressed with Dr. Richardson's styptic colloid, which I continued to use for upwards of a fortnight. I have had much reason to be satisfied with it, not only in this but in some other cases in which I have employed it. On May 29, the wound being nearly healed, I took the limb out of the box.

I shall not, on the present occasion, discuss the various modes which have been suggested and practised by surgeons for performing the operation of excision of the ankle-joint. The method which I adopted differs from those recommended originally by Moreau, and subsequently by Professors Hancock, Langenbeck, and others. The operation, as performed by me, leaves the extensor tendons intact. There is no risk either of injuring the tendon of the tibialis posticus muscle, or posterior tibial artery, and as there is only a single incision required, the chances of rapidity of healing are increased, as the suppurating surfaces are necessarily less in extent. Lastly, there is no danger of wounding the anterior tibial artery.

Towards the end of August the condition of the joint was as follows:—The wound was completely healed, but along its track were two or three openings of sinuses, through which oozed

occasionally a little thin purulent matter. In every other respect his health was excellent. He was quite free from all pain, and was beginning to be able to walk a little with the aid of sticks. In October the sinuses were completely healed, and the patient was able to walk up and down the ward without any inconvenience. The immediate results, therefore, of the operation were completely successful, and I was most sanguine that I would be able to add this to the list of cases said to have been permanently cured by the operation. I have recently, however, heard from the patient in the country that the sinuses which were so long closing have re-opened, which, in all probability, is evidence of a return of the carious process in some one or more of the bones of the foot. It is, I think, much to be regretted that the eminent surgeons who have published so many "successful" cases of resection of the ankle-joint for caries, have not stated at what period after the operation they were recorded as such. It would, of course, be unphilosophical to generalize on the value of any surgical procedure from the result obtained in a single case; but I cannot help being inclined to the opinion, that although I believe the operation is specially indicated in gunshot and many other grave injuries of the ankle-joint, the cases in which the operation is suitable for the removal of carious disease must be very few indeed, in consequence of the great rarity of meeting with cases in which the disease is sufficiently localized to justify this procedure.

II. *Sub-periosteal Resection of the Elbow-joint.*—There can be little doubt that of the articulations, for disease of which, resections are now so frequently practised, the elbow-joint must be held to be the one which is specially suited for this operation, inasmuch as unfavourable results are of such rarity, and also from the fact that the operating surgeon is now in a position to expect, with good reason, not only the subsequent attainment of perfect flexion and extension in the joint, but also a re-formation, more or less complete, of the removed osseous structures which, in the great majority of cases, undoubtedly can be attained, either by careful preservation of the periosteal fibrous envelope, or, when it is possible, by the method of *évidement*, which has been recommended in preference by the eminent Strasbourg surgeon, M. Sédillot. A glance at the table of 333 cases of excision of the elbow-joint which have been collected from various sources, and published in the "Archives of Clinical Surgery," Vol. vi., p. 86, by Dr. Dontrelepont, will at once



satisfy the most sceptical surgeon in regard to the great rarity of unfavourable results in these cases. They are as follows:—

In 333 cases—

Death, . . . .	40, or 12 per cent.
Amputation, . . . .	14, „ 4.2 „
Anchylosis, . . . .	23, „ 6.9 „
Mobility, . . . .	256, „ 76.87 „

In truth, the operation very seldom indeed terminates fatally, and when it does so, it is from pyemia or other causes, which are common to all operative procedures. The only instances which have fallen under my observation, and which terminated fatally, were two. One in which there was acute inflammatory disease in the joint at the time of the operation, and the other was one in which the operation was performed—I may add, not in this country, to our credit be it said—for no disease, but for a congenital malformation of the elbow, which impeded, to a certain extent, the natural motions of the joint. In this latter case the patient died of pyemia on the eighth day after the operation.

The particulars also of the case of C. Waddick, whose left elbow-joint I excised, and the account of which I published in the *Dublin Quarterly Journal* for May, 1865, fully bear out the truth of the statement made above in regard to not only the possibility but probability of obtaining subsequently perfect mobility in the new joint. The patient now enjoys every motion in the elbow that the healthy joint possesses, perfect power of flexion, extension, pronation, and supination. The osseous reformation also is very remarkable. Encouraged by the success attained in this case, and which I have seen in many cases equally well attained by other surgeons, I determined to give the patient, whose case I am about briefly to record, the chance of obtaining, by similar means, the possession of a useful arm, and, as far as the case has gone, though in many respects an unfavourable one, owing to the large amount of disease which was found external to the joint, it promises to fulfil these not too sanguine expectations.

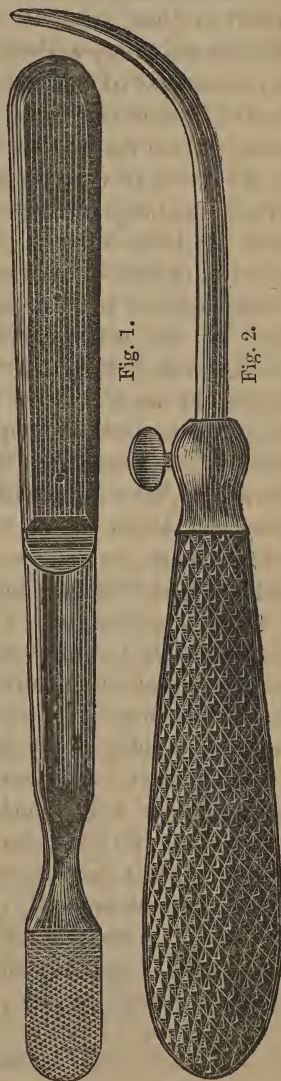
Catherine Ryan, aged eight, a child of very delicate strumous temperament, was admitted under my care into the Meath Hospital, on the 24th of last June. The right elbow, which was evidently the seat of very extensive scrofulous disease, had been affected for upwards of nine months, and had commenced, according to the accounts her parents gave, apparently without any local exciting cause. The joint was enormously enlarged, the result apparently

not so much of any extensive effusion as of great thickening and hypertrophy of the synovial and other soft structures. Though, in truth, in all such cases, when the disease is extensive, it is difficult, if not impossible, to define accurately what parts are chiefly affected. The integuments, especially on the posterior aspect of the joint, were much disorganized, and in three or four places had ulcerated, and, through the sinuous openings in these situations, oozed continually a thin, sanious, unhealthy-looking, purulent discharge. Through only one of these sinuses was I able to satisfy myself of the existence of diseased bone, namely, through the one situated over the head of the ulna. The patient did not suffer much pain in the joint except when it was moved. All power of flexion and extension was completely and entirely lost, and, in truth, at first sight, it was quite obvious that in the treatment of the case, looking at the large amount of disease that was present, the question to determine should be whether it was one for which the operation of amputation or excision should be performed. The latter I determined on, as being beyond question the preferable alternative, having stated, however, previous to the operation, that should I find the amount of disease too great to justify resection, I should then have recourse to amputation of the arm. The operation, which was performed on the 25th of last June, was done in the manner I have frequently advocated, namely, by the vertical incision of Park, taking especial care in detaching the soft parts from the bones, to remove along with them, by some of the various ingeniously constructed instruments for the purpose, the fibrous envelope or periosteum. The advantages which I have pointed out as accruing from the adoption of the vertical incision are, first, that the suppurating surfaces are necessarily less in extent than when the ordinary H incision is made, and that consequently the chances of rapidity of healing will be increased if the opportunity for suppuration be diminished. Secondly, that the numerous muscles in the neighbourhood of the elbow joint are not divided transversely, and that, consequently, there can be no transverse cicatrix in their tissues, which would, in all probability, impede their action subsequently; and lastly, we avoid, by the vertical incision, the formation, of a transverse cicatrix, which, when it exists, impedes certainly the extension and flexion motions of the joint. In preserving the periosteum we have a two-fold purpose. First, to obtain a more natural appearance in the shape of the joint; and, secondly, which is far more important, to obtain a genuine

re-formation of bone. The periosteal ablation I accomplished in this case by a periosteal raspatorium, devised, I believe, by Professor Langenbeck, and which was kindly given to me by Dr. O'Grady. As I have found it a most useful instrument in this and other cases where I have had to detach this membrane, I affix here (Fig. 1) a wood-cut of Langenbeck's periosteal raspatorium, and also of one (Fig. 2) devised by M. Ollier of Lyons, in order to give my readers a clear idea of their shape and construction.

And here I would certainly join issue with MM. Sédillot, Sarazin, Marmy, and other of M. Sédillot's followers, who have asserted with more energy than reason the vast superiority of the method of *évidement* or "scooping" over sub-periosteal resection, practised in the manner I have described. M. Sédillot's theory is based on the belief that for the successful regeneration of bone the preservation of the fibrous envelope of the bone is of less importance than its external dense compact tissue. It is impossible, according to him, to remove the membrane from the diseased bone without seriously injuring or destroying its osteo-genetic properties. He believes that the success of osseous regenerations depends on "two principal causes. First, the integrity of the periosteum; second, the regularity and immobility of the surfaces, sheaths, or moulds, in which the osseous matter is formed.

"Thus is explained the rapidity or slowness of the generation of bone, by the diverse degrees of alteration or destruction of the periosteum (by wound, inflammation, ulceration, supuration, gangrene) and the immobility and regularity of the surfaces where





the osseous cellules are deposited and agglomerated, serve to explain the superiority of the method of scooping (*évidement*) over that of subperiosteal resection, because in the former the mould is regular, immovable, and invariable, and the periosteum intact, while in the latter, this membrane is always more altered, sometimes destroyed, and the mould incomplete, mobile, and irregular."<sup>a</sup>

Without entering minutely into the various objections, theoretical as well as practical, that might with good reason be urged against this theory, I may observe that the "*évidement*" to be performed in the manner indicated by M. Sédillot, presupposes, of necessity, a case in which the disease is localized, to a greater or less extent, in the central cancellated tissue of the bone; and, though it cannot be denied that this tissue is frequently, though not always, the primary seat of strumous disease, I would ask, is it not of extreme rarity that the surgeon has an opportunity of examining, after operation, a case of strumous disease of any of the joints in which it was localized in this situation? and were the surgeon enabled to diagnose such a case with accuracy, would he then be justified in recommending resection, when the disease was necessarily so limited in extent? In regard to the statement made by M. Sédillot, concerning the injury that is inflicted on the periosteum, which, in his opinion, has the effect of impairing, if not of destroying, its osteo-genetic properties, the best answer that can be given is, that the facts of a large number of recorded cases, as well as the results of extensive physiological experiments, are entirely at variance with this purely theoretical objection.

To return, however, to the case which has suggested the above remarks. On opening into the joint I was at once struck with the limited extent of disease in the osseous tissues. It was, in fact, limited to the head of the ulna, but in this situation the cartilages were pulpy and thickened, and the bone soft and degenerated. Although the disease was so limited in the osseous structures of the joints, I had no hesitation in removing the ends of all the bones entering into its formation, as the results of partial excisions have been found to be so unsatisfactory. For example, the difficulty of getting proper union is very great in such cases, and when it is obtained it is usually by bony ankylosis instead of by fibrous tissue. The excision being performed, the edges of the wound were brought together by five or six points of silver suture, and a

<sup>a</sup> *Gaz. Hebdomadaire*, January 27, 1865. Translated in *Syd. Soc. Surgical Report* for 1865-66.

piece of oiled lint being introduced into the wound to serve as a vent for the purulent discharge, the limb was put in a semi-flexed position in a gypsum bandage. The arm was first enveloped with a flannel roller from the wrist to the shoulder, a large padding of French cotton having been placed over the wound, it was next covered with a coarse muslin bandage, into which I had previously rubbed some dry plaster of Paris powder. This bandage before being applied over the flannel one was moistened with tepid water. A layer of semi-fluid plaster was then laid over the muslin bandage, and this, when nearly dry, was covered with a second muslin roller, and the bandage was completed by laying on a second application of gypsum.

The following day I cut an oval window in the bandage over the wound, and having painted over the bandage with an etherized solution of Dammar resin to prevent the action of the water softening the gypsum, I placed the limb in the continual bath. In this the arm was kept for twenty-two days. It was then taken out and put up in a felt splint, and the ulcerations, which existed previous to the operation, I commenced dressing with a solution of iodine and glycerine. After some weeks of this treatment the ulceration healed. I shall not detail the daily progress of this case. In the early part of last October the patient, though her present health was in a very delicate state, left the hospital, the wound and sinuses having completely healed.

III. *Resection of the Knee-joint.*—Notwithstanding the energetic and able advocacy for resection of the knee-joint in the Dublin school, the operation is one which all reflecting surgeons must admit to be still *sub judice*. We cannot shut our eyes to the fact that in many of the leading Continental schools of surgery the operation is in disfavour. In Berlin, for example, we see it entirely abandoned by the deservedly eminent Prussian surgeon, Professor Langenbeck, and in the Vienna and Paris schools it is also held in disrepute. From Dr. Eben. Watson, formerly surgeon to the Royal Infirmary of Glasgow, we learn that of the eleven operations for excision of the knee-joint that have been performed there up to 1860, only four were successful, of the seven failures, “four died from the effects of the operation, three were submitted to amputation through the thigh, and one of them survived, so that of the eleven patients operated upon six died.”<sup>a</sup> In a recent

<sup>a</sup> Glasgow Medical Journal, October, 1859.

number also of the *Medical Press and Circular* we were informed by Mr. Holmes Coote, that of the six cases of excision of the knee-joint, which were performed at St. Bartholomew's Hospital last year, three died, and in all cases it was performed at an age most favourable for convalescence and recovery—namely, between infancy and early adult life." In gunshot wounds involving the knee-joint the results of excision have been still more unfortunate. Of the seven cases recorded prior to the recent American war, only two terminated successfully, and of the eleven cases in which complete excision of the knee-joint was performed during the late protracted war, as recorded in Circular No. 6, a report of the surgical experiences acquired there, and recently published by the American Government, only two were successful, and in one of these the author of the report, Surgeon-General Dr. Barnes, states that the success was "so extraordinary as to suggest some doubts as to its authenticity." We should not forget, however how very difficult it must be during active military service to obtain the requisite hygienic and surgical resources necessary for the after treatment of such cases.

Notwithstanding these unfavourable statistics, the operating surgeon can always derive encouragement from the records of the cases, collected from various sources by Mr. Butcher, for he will find that of the ninety-nine cases in these tables only twenty-five deaths are recorded, and of the remainder, twenty-four were "under treatment," and said to be recovering, and forty-two were "cured." In truth, one chief cause for the ill-success which now so often attends this operation is, I think, that surgeons have too often looked upon the procedure as an alternative for amputation, and very rarely, indeed, as one of expediency. In other words, it is too often deferred until even the propriety of amputation might properly be questioned.

The particulars connected with this case I am about very briefly to record, have suggested these preliminary remarks; for I cannot but think it more than probable, that had the operation been performed at an earlier period, when the vital powers of the patient were not brought to so low an ebb, the chances of bringing the case to a successful termination would have been largely increased.

Susan Hillas, aged twenty-three, was admitted into the Meath Hospital in last February, having been recommended to me by my friend and colleague in the Carmichael School, Dr. R. Shaw. Her condition on admission into hospital was truly pitiable. There was



great emaciation, an expression of long-continued suffering, and much prostration from a continuance of sleepless nights, produced by the often repeated and violent starting pains, so characteristic of the disease, which were present both by day, on making the slightest movement, and also by night, when they occurred with a violence and frequency which caused her often to scream, so painfully acute were they. The knee, which had been affected in this way for upwards of eighteen months, was not much swollen, being free from effusion, but over the inner side of the joint there was the peculiar elastic, indian-rubber sort of sensation, which is so often present in articulations affected with much synovial thickening. The joint was strongly flexed, and any attempts to alter its position were wholly unavailing, owing to the extreme pain that they produced. There was no physical sign or symptom of any organic disease elsewhere to be found. Shortly after the patient's admission into hospital, I put her under the influence of chloroform, and extended the leg, and kept it in that position by an apparatus, which I made for the purpose, of Spark's prepared leather. In addition to this, I kept continually applied to the joint the belladonna liniment of the Pharmacopœia, and internally administered opium and cicuta in large doses, during both day and night.

Under this treatment the patient appeared for some time to derive benefit, but it was not permanent, and after trying rest and the other treatment I have already alluded to, for more than two months, and not finding any improvement in the patient's general condition, I determined, should she accede, to have recourse to some operative interference. The patient promptly and positively refused to have an amputation performed, although I expressed my opinion that, owing to her very debilitated condition, I thought the chances of subsequent convalescence would be greater if she selected amputation, in preference to excision, of the knee-joint. To the latter procedure, however, she would only accede. Nor, I confess, was I at all despondent about bringing the case to a successful termination, for there were some features connected with it which, I thought, made the resection of the knee-joint a perfectly fitting and justifiable operation to have recourse to. Among others, her freedom from disease elsewhere, and above all, her youth. Resection, therefore, being agreed upon, the next important question for me to determine was, what line of incision I should adopt. As I was very anxious to preserve the patella, should that bone and its

cartilage be found healthy, I anxiously considered the propriety of performing the operation by the single longitudinal incision, one great advantage of which is, that the ligament of the patella and its attachment to the tibia can be preserved intact. This line of incision was formerly strongly advocated by Langenbeck and his pupils, and having frequently practised it on the dead subject, I can endorse all that has been said as regards the facility with which the operation can be performed by adopting this method.

It is performed in the following manner:—The limb should be extended, and an incision, commencing a little above the internal condyle, should be brought down on a line with the anterior edge of the internal lateral ligament, as far as the insertion of the sartorius. The knife should be carried down to the bone, the capsule of the joint divided on the inner side of the femur, and the patella then dislocated completely outwards. In this way a complete view of the internal structures of the joint is obtained.

The crucial ligaments should then be divided, and the joint forcibly flexed, and the external lateral ligament divided. The remaining steps of the operation can be performed in the ordinary manner.

This method, however, has not been attended with as favourable results as the old H-shaped incision, and accordingly I determined to adopt this. It would have been quite useless (as I found on opening the joint) to attempt preserving the patella, for the bone, as well as the cartilage on its posterior surface, was extensively diseased.

During the operation, which, ably assisted by my colleagues Messrs. Porter, Collis, and Wharton, I performed on the first of last May, three vessels, two of considerable size, had to be secured, which I accomplished by acupressure, adopting the methods of quarter and half rotation, or first and second varieties of the fifth or Aberdeen method. The hemorrhage was perfectly arrested by this. There was considerably more disease in the joint than I had anticipated. The synovial structures were pulpy, thickened and gelatinous, and there was extensive ulceration of cartilage. The case was, in truth, a typical example of ulcerative action in articular structures. This was especially well-marked over the inner condyle, the cartilage of which was much eroded, as was also the bone. The same condition was observed on the corresponding facet on the head of the tibia; and, as was before mentioned, the cartilage on the posterior aspect of the patella was extensively engaged. There was intense

vascularity of all the structures of the joint. In the accompanying chromolithograph, from a drawing by Mr. Burnside, their appearances are faithfully delineated.

After the operation was concluded, the limb was put up in the ordinary manner in Butcher's box, and a powerful anodyne administered at once.

3 P.M.—Found patient in a state of great excitement and hysteria. Heart's action fluttering, and very excited. Impossible to estimate accurately the rate of pulse. Complains of great starting in limb. Ordered an anodyne, with forty drops of Battley's sedative.

10.30 P.M.—Quieter; excitement abated; has had a little sleep; feels drowsy; does not complain of startings or pain.

May 2nd, 10 A.M.—Pulse 140; great gastric irritability; vomits everything; ordered iced soda-water, hydrocyanic acid and champagne.

9 P.M.—Has had another very severe fit of vomiting; nothing remains on stomach; pulse 150, weak and compressible; appears to be sinking; ordered a draught containing sol. mur. morphiæ, gtt. xxxv.; acid hydrocyanici, dil. gtt. vi.; brandy, ʒi., in two tablespoonfuls of iced soda-water; and also a small blister to the pit of stomach.

3rd.—Great change for the better; had some hours sleep; countenance cheerful; retching and vomiting ceased; pulse 112; to continue the iced beef-tea and champagne in small quantities at a time.

4th.—Dressed the wound for the first time; edge of anterior portion of flap united; all going on well.

6th.—No return of gastric irritability; pulse 120; tongue moist; appetite good; copious suppuration from the wound; removed two of the points of suture; transverse wound united completely.

It would be tedious to continue the daily report further. For upwards of a fortnight after the last report, notwithstanding the extremely hysterical and irritable temperament of the patient, everything appeared to promise well. The suppuration in the wound continued to diminish sensibly; the appetite also improved, and the patient had better nights; at this time I was most sanguine in believing that the case would be brought to a successful termination; my colleagues were also of this opinion. At this stage, however, grave pulmonary symptoms manifested themselves—the pulse rose, and night perspirations, and other evidence of a hectic condition were developed.

On the 6th week the pulmonary symptoms, which exhibited all the usual phenomena of acute tuberculosis, became much aggra-



vated, and it became evident that the end of the patient was rapidly approaching. Notwithstanding, however, her critical condition, the wound continued to improve up to the last week of her life; but on this week, the seventh after the operation, she gradually sank, and died on the 15th of June.

In considering the features of this case, I cannot avoid coming to the conclusion that had the operation been performed at an earlier period of the disease, before the patient's vital powers became undermined by long-continued suffering, the result would have been probably very different, and I regret—and think it right to record that regret—that I did not perform the operation when the patient first came under my care at the end of last February. We should not wait until resection becomes nothing more than an alternative for amputation. “Do not the very circumstances,” observes Dr. Watson, of Glasgow, “which demand the amputation, diminish the likelihood of success from excision? Surely, then, the two operations ought not to be canvassed at the same time. If it is the time for amputation, then it is too late to attempt the salvation of the limb by excision; and if the latter course is at all a desirable one, then ought we to pursue it before the patient's case has become well-nigh desperate. I believe it has been by acting too rigidly on the opinion that excision was a mere substitute for amputation, that we have had such poor success with our cases in Glasgow, and if I am not very much misinformed, surgeons elsewhere have not so acted, but have chosen cases for excision that were by no means *ready* for amputation. I think that we should do so too—that we should select patients who have some health and strength to work upon, as the subjects of this operation, and not those who are already sinking into the grave.”

In concluding this brief record, I should be failing in duty were I to omit expressing my warm thanks to Messrs. Cooke, Locke, and Crosslé, our clinical assistants in the surgical wards of the hospital, for their care, and untiring zeal and energy, not only during the progress of the case I have just recorded, but in all those they had under their care since they were appointed to the offices they recently so worthily occupied.

IV. *Resection of Metatarsal Bones.*—I shall conclude this clinical report on the resection of joints and bones, by briefly adverting to a case of very chronic strumous disease of the metatarsal bones, which was under my care last September, and for

which the operation of resection was attended with the happiest results. The following are the leading particulars of this case:—Matthew Davis, aged sixteen, a boy of very strumous habit, was admitted into the Meath Hospital on the 20th of last September. He stated that about two years previously he suffered from the formation of an abscess, which he could not ascribe to any cause, never having received any injury whatever to the foot. At the time of his admission he suffered greatly from pain. At points corresponding to about the centre of the third and fourth metatarsal bones were situated sinuses, through which oozed a thin, sanious, unhealthy-looking discharge, and on introducing a probe through them, softened, denuded bone could readily be felt. There was a good deal of general infiltration and swelling about the diseased structures. In consequence of this condition of the patient's foot, he was quite unable to follow any occupation. Various lines of treatment had been had recourse to previous to his admission into the Meath Hospital, but as yet all treatment had proved unavailing. My colleagues, Messrs. Porter and Collis, quite agreed with me in thinking that as the disease seemed so localized, an attempt to preserve the anterior portion of the foot, by performing a resection of those metatarsal bones in which the disease appeared, should be made. Accordingly on the 27th September I performed the resection in the following manner:—I commenced by making an incision about two inches and a-half in length on the situation of the fourth metatarsal bone, and at the centre of this I made another an inch and a-half in length, at right angles with the first passing inwards. The two triangular-shaped flaps thus made were dissected back, and soon we were enabled to see the diseased osseous structures. The periosteum was very much thickened, and consequently easily detached from the bones, which were, without much difficulty, removed by the aid of resection saws, gouges, both straight and rectangular, and sequestrum forceps, &c. The diseased bones being removed, the edges of the wound were brought into close apposition by means of silver points of interrupted sutures, dry lint dressings were applied, and the patient sent to bed. It is unnecessary to detail the daily account of the progress of this case. In the course of ten days the wound was so nearly entirely healed that all dressings were removed, and about a fortnight after this the wound and the sinuses being completely healed, the patient, free from pain, left the hospital, enabled to walk about without any distress or inconvenience whatever.

ART. II.—*The Spontaneous Elimination of Uterine Tumours.*

By ALFRED H. M'CLINTOCK, M.D.; F.R.C.S.I.; late Master of the Lying-in Hospital, &c.<sup>a</sup>

IN this communication I propose considering the modes by which nature occasionally relieves the uterus of the presence of a solid growth. The very great frequency of such growths in this organ, and the serious consequences which they so constantly entail, invest their history with deep interest for the practical gynecologist.

To study any disease aright we should commence by studying the course which it takes when left to itself, and uninfluenced by the active interposition of art. Of such an investigation there is no more important branch than that which relates to the conservative processes whereby nature removes from the system morbid products constituting the essence or the effects of a disease. This paper I would offer, then, as a contribution towards the natural history of solid tumours of the uterus—an attempt to improve and extend our knowledge concerning the spontaneous elimination of these neoplasms.

From the title of this memoir it will be seen that I do not strictly confine my observations to any one class of tumours, though, in point of fact, the tumours to which it relates were almost entirely of the fibroid or fibro-sarcomatous kind, the occurrence of any other kind being extremely rare in this organ.

Out of all cases of tumour of the uterus, the proportion in which a curative process is set up is comparatively but very small, whilst the number in which nature effects a cure is still smaller. Nevertheless, many cases of spontaneous elimination are recorded, and there are few obstetricians of any considerable experience who have not met with two or more instances. An acquaintance with this subject is, therefore, absolutely necessary, if we would aim at correct diagnosis, or avoid committing gross errors.

It is to be remembered that the processes set up by nature for the destruction of these growths, although conservative in their tendency, sometimes involve considerable danger to life.

The study of a large number of recorded histories, together with the results of my own clinical observation, lead me to believe that there are *five* different modes by which nature may effect the cure

<sup>a</sup> Read before the Dublin Obstetrical Society.



of a tumour of the womb. To reduce the number cannot be done, I think, without confounding cases essentially different, whilst to increase it beyond five would be devoid of any real utility. These five modes of elimination are as follows, viz. :—

1. Interstitial absorption.
2. Simple detachment, or separation.
3. Calcareous transformation, or petrification.
4. Sloughing, or disintegration.
5. Expulsion by uterine contractions.

I have arranged them in this order, believing that it represents—approximately at all events—the relative degree of risk attaching to each process, absorption being the least dangerous, expulsion the most so. Were the cases to be arranged according to frequency, the order would be somewhat different. *First* and most frequent would be the cases of sloughing; then the cases of detachment; after them the cases of expulsion; next those of calcareous degeneration; and lastly, those of interstitial absorption. I do not pretend to affirm that this order is strictly correct, for it is not deduced from any minute statistical calculation; still I think it will be found pretty near to the truth.

1. The *absorption* of a solid uterine tumour, even with the aid of medicine and other agencies likely to favour the process, is considered by some an impossibility. It is true, as a general rule, that heterologous formations are not removable by absorption. But is it correct to regard fibrous tumour of the uterus as such? Upon this point I can cite no higher authority than that of Virchow:—"We find, for example," he says, "that the so extremely common form of uterine tumour, which has been designated fibrous or fibroid, has in every respect the same structure that the walls of the 'hypertrophied' uterus have, inasmuch as it consists not only of fibrous connective tissue and vessels, but also of muscular fibre cells. The tumour may, as is well known, become so large as not only to embarrass the uterus in all its functions in an extreme degree, but also to exercise, through pressure, the most injurious influence upon the neighbouring parts. In spite of this, it must always be considered an homologous structure."—*Cellular Pathology*, p. 443.

But again, in cases where a fibrous tumour (or what was supposed to be such) was absorbed, the correctness of the diagnosis has been disputed, and it is urged that the tumour was only an inflammatory

or œdematous swelling, or a chronic hypertrophy, or some tumefaction whose removal we know to be quite probable. Objections of this kind may no doubt be advanced, and the possibility of an error of diagnosis in any particular instance, can very seldom be completely excluded. Still there remains an amount of evidence on this question, from which we cannot escape drawing the conclusion, that nature is capable, on some rare occasions, of entirely removing a solid—it is to be presumed a fibrous—growth by the process of interstitial absorption. This position derives corroboration from the cases—and they are not a few—in which the same result was brought about by the use of therapeutic agents. One such case occurred to myself, and has been published.<sup>a</sup> I do not here refer merely to cases—common enough—in which the tumour undergoes an apparent reduction of its bulk after treatment, menstruation, or delivery, and which reduction is to be explained by the removal of congestion or œdema. I am speaking now of the actual absorption of the growth itself.

A very striking example of the complete removal of a fibrous tumour by absorption is recorded by Dr. Matthews Duncan, and what enhances the value of this case (besides the thorough competency of the observer) is Dr. Duncan's own acknowledgment that he has been, as it were, forced against his judgment, by the evidence of a single case, to admit the possibility of the complete removal of a large fibrous tumour by absorption. He writes:—"The tumour was as large as the fetal head at the end of pregnancy. It was as easily and as perfectly diagnosed as any case could be. There was no doubt ever thrown upon the nature of the case by any of the experienced practitioners who examined it. It had every character and symptom of a fibrous tumour. The patient was long in the most aggravated state of anemia. *Now*, there is as certainly no uterine tumour, as there was certainly one formerly. The only method of escape for me, in the evidence of this case in favour of complete absorption, is the supposition that the tumour may have become spontaneously enucleated, separated and discharged, without the consciousness of the patient. This alternative, I confess, considering the cleanly habits and truthful character of my patient, seems more unlikely than the other."

Dr. Routh tells us in his Lettsomian Lectures that he "has met with at least two distinct cases of large fibroid, which, he should say, filled the pelvis, and materially interfered with the functions

<sup>a</sup> Clinical Memoirs on Diseases of Women, p. 141.

in that cavity, where the tumours have gradually diminished to the size of small apples" (p. 38).

It is worthy of notice, and Dr. Routh pointedly alludes to the fact, that in both these instances, as well as in others, the atrophy of the tumour took place contemporaneously with the change of life, which would seem to imply that it resulted from arrested nutrition.

Whether the structure of the tumour undergoes any degree of softening preparatory to its removal by the absorbents, it is impossible to say. Dr. West thinks that it does, and a case recorded by the late Dr. Rigby rather supports this view, as he states, in the course of its history, that the tumour became *softer* and smaller.

The processes of transformation and absorption going forward with such activity in the uterus after parturition may, perhaps, be extended to a growth standing in close vital relation to the organ, and thus lead to its partial or complete dispersion. Although parturition is likely to produce in the tumour other effects than its simple absorption, still experience shows that this latter is an occasional consequence, and the most fortunate one for the patient. "If," says Scanzoni, "we consider the great vascularity, the hyperemia, the infiltration, and the softening which these tumours present during gestation, it will be seen that if there is any time at which the conditions are favourable to absorption it surely is the puerperal state" (p. 237 of American edition). The same high authority reports a case where "a fibrous body of the size of a man's hand, the diagnosis of which was perfectly sure, disappeared during confinement, in a manner so complete that six weeks after parturition we could no longer discern a trace of this tumour, which had existed for eleven years" (*op. cit.*)

2. *Detachment*.—From the meaning of the term detachment (or severance), it is obvious that only such tumours as are pediculated—polypi in fact—can be the subjects of this mode of elimination; but it matters not whether they spring from the mucous or the serous surface of the womb. There are three ways in which this separation may be effected, and numerous examples of each could be adduced. First, the pedicle may give way from simple atrophy and attenuation; second, when the pedicle is small it may break or snap asunder in the act of extrusion from the uterine cavity, or from the weight of the suspended tumour; and lastly, the pedicle may be destroyed through the constriction exerted



upon it by the os uteri or ostium vaginæ. If the detached tumour remain in the genital canal, it will, of course, speedily decompose and become putrid.

CASE I.—In the year 1863 Mr. Richardson asked me to see with him a patient from Drogheda, aged forty-two, who had some uterine symptoms. On examination we found in the vagina a polypus the size of a walnut, in a completely sphacelated state. It had grown from the interior of the womb, and the small stalk had apparently been strangulated by the grasp of the os uteri. The shred of decayed pedicle which remained was broken by a slight effort of torsion.

Should a polypus become detached whilst still within the uterus—a thing not wholly impossible, perhaps—and be retained there till decomposition sets in, it would be very hard to distinguish such a case from one of those to be presently described, in which sloughing or disintegration of a tumour occurs as the primary lesion. This obscurity would have hung over the following case, had I not been made acquainted with the previous history of the patient.

CASE II.—In the month of April, 1859, Dr. Fitzpatrick, then medical attendant of the Moynalty Dispensary; County Meath, but now of Sussex Gardens, London, sent up to the Lying-in Hospital (of which I was at the time Master) a patient, in whom he had ascertained the existence of a smooth pyriform polypus, insensible to the touch, and encircled above, at its neck, by the os uteri. Some days intervened between the dates of his examination and of her arrival at the hospital. I found the uterus low, its orifice considerably dilated, and a firm rough tumour within the os, and partially protruding from it. There was an exceedingly fetid discharge. The surface of the tumour was seen to be of a dark green and brownish colour. I took hold of this tumour with a vulsellum, but on pulling firmly it gave way, and only a small bit was removed, which was evidently in a gangrenous state; but its fibrous structure was still apparent, and it lacerated in a definite direction. In the course of the succeeding week I extracted several fragments of the tumour in a decomposed state, and a good deal more came away in the discharge. During this period her life was seriously threatened, from the amount of irritative fever which was present. She had rigors; a small, rapid pulse; dry tongue; total loss of rest and of appetite. According as portions of the tumour,

day by day, were withdrawn, the os began to close, and the constitutional disturbance to subside, so that by the end of the month she was able to leave the hospital and return home. I should mention that she was a widow, aged sixty, and had borne nine children. For upwards of two years she had been subject to constant hemorrhages, but these had entirely ceased a short time before she came to the hospital, in consequence, we may presume, of the strangulation of the tumour. The *rationale* of this case is plain enough, I think. The polypus was expelled through the os, whilst the pedicle was still insufficiently long for this change of place. Complete strangulation of the tumour now took place, entirely destroying its vitality. Consequent upon this, it diminished in size, so as to permit of retraction within the uterine cavity; and such was the state of things when the woman came under my care.<sup>a</sup>

Polypoid fibrous tumours, growing by a slender pedicle from the peritoneal surface of the uterus, may become detached by some sudden movement of the body, whereupon the tumour drops into the cavity of the belly; of which Simpson states that he "has seen several instances" (*Obstetric Works*, Vol. i., p. 117), and Dr. Turner has very fully reported another (*Ed. Med. Jour.*, January, 1861). In one sense the tumour is now to be regarded as a foreign body lying within the peritoneal sac, and so far is analogous to the loose cartilaginous bodies found in the knee-joint. It would appear from the reports of cases that the presence of a loose fibroid in the belly is perfectly innocuous, and does not ordinarily excite any irritation in the contiguous viscera or serous membrane. The tumour itself undergoes no change, but presents the same appearance as these tumours are wont to do when still in vital connexion with the womb.

It not uncommonly happens that before its separation the tumour has contracted an adhesion to some adjacent part, and when so circumstanced its severance from the uterus is more apt to occur, especially if the new connexion be to a viscus, such as the bladder or rectum, which is constantly undergoing changes in size and position. Simpson reports the case of a lady who, from her unusual shape after delivery, was supposed to have an extra-uterine fetation. She died of puerperal peritonitis in the second week, and a fibrous tumour was found adhering firmly to the peritoneum lining the anterior wall of the abdomen, while its pedicular

<sup>a</sup> The full particulars of this case will be found at page 166 of my *Clinical Memoirs on Diseases of Women*.

attachment had stretched and lacerated during the involution of the organ after delivery (*op. cit.*, 834).

3. *Calcification*.—A much rarer event than either of those we have been considering, is the transformation of a fibrous tumour into a calcareous mass which ceases to grow, and may be partly or entirely discharged. It is a degeneration from animal to inorganic substance. The propriety of regarding this change as a mode of elimination may be disputed. The tumour certainly remains in most cases, but it ceases to hold a vital connexion with the economy, and the symptoms which it had previously produced abate or altogether disappear.

In a very few instances the structure of these calcified or petrified fibroids has a near resemblance to bone, but such cases are quite exceptional. In the vast majority no true bone is formed, but earthy particles, chiefly salts of lime, "are deposited and accumulated in the organic basis of the tumour, so as to make a mass which is sometimes friable and porous, sometimes hard and dense as marble" (Simon). By what process this remarkable conversion or transformation is brought about we cannot tell. Inflammatory action would seem to have no part in it. The appearance of the tumour and of its nidus indicates this. Nay, more, guided by the analogy of the cretaceous transformation of tubercle, and of the so-called ossification of arteries in the aged, we should rather regard it as the result of defective nutrition. "This much at least can, with certainty, be affirmed (writes Virchow, p. 365), that we are as yet acquainted with no stage in these changes which is at all akin to inflammation." Although we must confess our ignorance of the precise way or mode by which this calcification, or, to use the term proposed by Virchow, "petrification," of a fibroid is produced, still experience has shown us the circumstances and conditions which favour its production. It is chiefly met with in women advanced in life. It is confined nearly altogether to subperitoneal, or extramural fibroids; and generally to such as are pediculated, but not invariably so, as Dr. Turner would lead us to suppose. In the Museum of the Royal College of Surgeons (Ireland) is a very fine preparation, presented by the late Sir Philip Crampton, which strikingly exemplifies these points. The patient was an elderly woman, who married late in life, and never bore children. The disease was supposed during life to be ovarian dropsy, and did not appear to be the cause of death. The uterus contains several fibroids, the largest of which is about the size of a fetal head, and



has the hardness and density of bone. This tumour lies almost immediately under the peritoneum, but is still imbedded in the uterus, and not in the slightest degree pediculated. In direct apposition with it is a large interstitial fibrous tumour, which contains merely a trace of calcareous deposit.

Again we find that this process of petrification may be limited to the surface of the tumour, or pervade its structure. It "has no necessary connexion with the size of the tumour, and is not commensurate with its growth; but it appears (says Dr. Turner) to be in intimate relation to the size of the peduncle, and to the changes which take place, by obliteration or atrophy, of the vessels which pass from the substance of the uterus through the peduncle to the tumour."

A tumour that has undergone this calcareous transformation ceases to be productive of symptoms, except such as may arise from its mechanical influence. On rare occasions the calcified tumour has fallen from its nidus, and been discharged *per vaginam*.

It does not always prove quite so innocuous, however. Cases have been reported in which these petrifications, by infringing on a neighbouring organ, have caused ulceration and other ill effects. Dr. Turner cites a case where a large calcified tumour, growing from the back of the uterus, caused death by compression and rupture of a fold of the ileum, consequent upon a fall on the pavement.

Dr. Matthews Duncan exhibited, at the Edinburgh Obstetric Society, a calcified fibrous tumour of the uterus, from a patient who had died of peritonitis, and two holes were found in the peritoneum, apparently made by the tilting upwards of two thick scales of the tumour.

Through the kindness of Dr. Fleming, I once had an opportunity of seeing a most singular—indeed, I may say, unique case, in which a calcified tumour, springing from the anterior wall of the uterus, had made its way by ulceration into the bladder, producing all the symptoms of vesical calculus in their most intensely aggravated form. Some fragments of the tumour had been detached, and were found in the cavity of the bladder.

4. *Disintegration or Sloughing* is another change that may take place in a uterine tumour, and lead to its partial or complete extirpation. This process generally gives rise to symptoms of a grave kind, and in many instances the patient has actually sunk under the wasting effects of the discharge and the constitutional irritation.

Suppuration of fibrous tumours is described by some authors, but I see no necessity for making a separate category of such cases. In many of them the discharge was plainly due to softening of the tumour and irritation of the uterine cavity.

The vitality of the tumour having been destroyed—how, we shall presently inquire—it may come away *en masse*, or in broken, irregular fragments, quite putrid, at intervals of days, weeks, or months. All this while there is little or no pain, but a constant puriform discharge of a highly offensive character, and sometimes mixed with blood, is going on. In a few instances the tumour is too dense to melt away, and too large to be expelled spontaneously. Here art must interpose, or the life of the patient will inevitably be lost. Dr. Hall Davis met with two cases in the Middlesex Hospital, which strikingly exemplify the good effects of this timely interference. Very alarming symptoms, viz., fever, delirium, vomiting, &c., were present in each case; but the lives of both patients were saved by dilating the os, and removing the putrid *debris* of the tumours. I may here venture on observing that it was the study of such cases as these that led me soon after its first announcement, to form an unfavourable opinion of the operation of gouging uterine fibroids.

I have said that the coming away of the tumour may extend over a period of many weeks or months. A case will be presently related, in which six weeks were so occupied; and Dr. Churchill has kindly furnished me with the outline of a case where the process extended over a still longer period.

CASE III.—A widow lady, under fifty years of age, had uterine hemorrhages for a long time. Three tumours were ascertained to be present in the uterus, and could even be readily distinguished by external examination. Two of these tumours sloughed, one after the other, and came away per vaginam, at different times, in a softened, putrid state. From first to last the eliminative process occupied several weeks. During this time there was a profuse and very fetid discharge from the vagina; and there was much constitutional disturbance, but no uterine pain. After the second fibroid had passed away she recovered her health. The tumour remaining in the uterus could now be felt by itself. Soon after this the lady died of cholera; had she lived, it is probable the remaining tumour would have been cast off.

A very interesting but difficult question presents itself for solution,

with regard to the cases comprehended in this class, viz., what causes the sphacelation or death of the tumour? Both Dr. West and Dr. M. Duncan maintain that inflammation has nothing to do with it; whilst Cruveilhier, Scanzoni, and Simpson hold an opposite opinion. I am at a loss how to reconcile this latter view with the absence of all local symptoms of inflammation in or around the tumour. No doubt inflammation may arise in the progress of a case, but then it is a consequence, an effect, not the cause, of the death of the tumour: and further, when it does supervene under these circumstances, it is generally peritoneal or phlebitic.

There is yet another way in which, I think, we may very satisfactorily account for the death of the tumour, independently altogether of the influence of inflammatory action, namely, as the result of spontaneous enucleation, whereby its structural connexion with the uterine tissue becomes so limited as to be inadequate to the continued nutrition of the tumour, and, as a consequence, its vitality ceases—it dies, in short.

I am not aware of any fact directly confirming this supposition; but many cases have been recorded—especially by Dr. Matthews Duncan and by Cruveilhier—tending to show that it is not only possible, but highly probable; and so far, the explanation has more to commend it than any other theory that has been put forward to account for the spontaneous dissolution of an intra-uterine tumour.

An admirable example of the particular mode of elimination we are now considering lately fell under my notice, and I trust no apology is needed for presenting an outline of its history.

CASE IV.—The subject of the case was a large corpulent widow lady, aged sixty-eight, the mother of twelve children. She first consulted me in June, 1864, on account of recurring attacks of metrorrhagia, to which she had been liable for six or eight years. After due investigation I made the diagnosis of a large fibroid to the left side of the uterus. This accorded with opinions previously given by the late Professor Montgomery, the late Dr. Charles Johnson, and by Dr. Beatty.

I did not again see this lady till the latter end of last April. She then told me that for some months there had been little or no bleeding; but, that during the three or four weeks preceding my visit, she had suffered extreme annoyance in consequence of a profuse watery discharge from the vagina, of an intolerably fetid odour. Since the occurrence of this discharge the following symptoms had



developed themselves, viz., total disinclination to food; occasional attacks of diarrhea and sickness of stomach; severe rigors on three or four occasions; sleeplessness; a frequent pulse; foul tongue; and œdema of the feet and ankles. The os uteri was healthy, but dilated to the size of sixpence, and within it could be seen a portion of substance, evidently sloughy, which I endeavoured unsuccessfully to remove with a dressing forceps. This discovery led me to suspect the nature of the case, and I explained my views to the late Dr. Banon, who, as the family physician, saw this lady occasionally with me. At next visit (two days afterwards) she complained of a feeling of pressure on the rectum, and of dysuria, when I found a very large, softened tumour filling the whole vagina. The relations of the upper part of this decomposing mass I could not satisfactorily ascertain, in consequence of its enormous size, and the tenderness of the vagina. She had experienced no particular sensation that would have marked the time when the tumour passed out of the uterus; and I may here take occasion to state that at no time, from the beginning of present symptoms, was there any abdominal pain or tenderness whatsoever. Assisted by Dr. Banon, I fixed the points of a strong vulsellum in the tumour, and began rotating it. At first there was some little resistance to the movement, but this soon ceased, and the tumour could be turned round and round—in fact, it was quite free. We now set about extracting it, but our united efforts were required to get it through the vulva; at length it came away with a violent jerk, and was followed by the escape of a large quantity of abominably offensive purulent fluid.

The tumour had the size of a large cocoa nut, but was soft and sloughy. It was in a highly putrid state. The preparation of this tumour is now on the table, and belongs to the Museum of the Royal College of Surgeons. Dr. John Barker was kind enough to examine a section of it under the microscope, and he reports that he “could detect in it no specific characters of a malignant nature: it was very fibrous, with a large quantity of elastic tissue pervading its structure.”

From the time the tumour came away all this lady's symptoms began to subside, so that at the end of a fortnight not one remained. She soon afterwards returned to the country in better health and spirits than she had been for many years.

On many occasions the death and discharge of tumours has followed parturition, either from the effects of some injury which it sustained during the process of labour, or from the vascular supply

to the growth, being diminished by the contraction and subsequent involution of the uterus. Where this dissolution of the tumour has taken place at an early period in childbed, the consequences have generally been fatal to the patient.

Dr. Gardener, the American editor of Scanzoni, suspects that some of the pelvic cellular abscesses occurring after labour may, perhaps, be properly considered as the result of the breaking down of previously unsuspected fibrous tumours; and he adds, that several cases he has seen, while they are not perfectly convincing, force him to give this opinion some consideration. Pelvic abscess is known to be an occasional complication of uterine fibroids. In some of these cases it may be that the abscess depends on the disintegration of the fibroid, as Dr. Gardener describes. Certainly one case of this kind fell under my notice some years ago.

CASE V.—The patient was a middle-aged married woman, never pregnant, who had a large fibroid in the posterior wall of the uterus, for which she had been under my care for nearly three years. An abscess formed behind the uterus, and burst into the rectum. It continued discharging for some months, during which time the tumour underwent a gradual diminution in size, till it was reduced to about one-fourth of its original bulk. Eventually, however, the patient—who was very much anemiated, and had always been of a very delicate and highly scrofulous constitution—sank under the discharge and constant irritation of the rectum.

5. *Expulsion*.—The fifth and last mode of elimination I term expulsion, under which title are comprehended all those cases where uterine contractions—parturient efforts, in fact—form the leading symptom as well as the efficient cause of the separation of the tumour, which is still in vital connexion with the womb when the contractions commence. In the group of cases last considered, expulsive pains were very rarely present, and when they did occur, it was *in consequence of the death of the tumour*, which then acted as a foreign body, and excited parturient efforts on the part of the womb.

As the uterus is endowed with very great contractile power, we might, *a priori*, expect solid growths to be got rid of occasionally by the exercise of this faculty. Experience amply confirms this, but at the same time teaches us what we otherwise should not be quite so prepared for, namely, that the danger arising from this mode of elimination is greater, perhaps, than from any of the preceding.

A good many cases are reported where this species of parturition has been set up, and the tumour has thereby been partially or entirely removed. A large proportion of these cases occurred in the puerperal state, which may go far to account for the large mortality amongst them. But setting aside the puerperal cases, the danger would seem to be greater from *expulsion* than from *sloughing*. This more unfavourable result admits, perhaps, of some explanation. The expulsive process is the more acute: it is often accompanied by prolonged pains of a very severe kind; and lastly, the violent contractions of the diseased organ must powerfully tend to excite inflammation, or other morbid action in it.

Let me now submit the sketch of a very apposite case.

CASE VI.—In July, 1864, I met Dr. Bernard, of Dundrum, in consultation upon the case of a widow lady, aged forty, who four years previously had begun to lose blood in large quantity from the uterus. For the last twelve months, however, there had been no hemorrhage of any serious kind, and the catamenia were moderate. The uterine tumour reached as high as the umbilicus. In the lower part of it a short, loud souffle was audible.

The patient was a small, delicate woman, very ex-sanguine. At the time of my visit, and for some hours previously, she had been complaining of pain, of an intermitting kind, in the tumour, and there was a good deal of watery discharge. I found the os uteri dilated to the size of a shilling; its edges very thin, and the tumour pressing firmly into it. Some days later regular labour pains, of a very violent and expulsive character, set in. When I saw her they had continued for six hours without any abatement, and she was much exhausted, and her distress and weakness were aggravated by a continual nausea or vomiting. The abdominal tumour had undergone a considerable reduction in its size; whilst the vagina was distended down to the perineum with a fleshy mass, rendering it necessary to draw off the urine with the catheter. By the aid of morphia she got a little respite from the severe bearing down pains, but nothing stopped the sickness of stomach. Some hours later I found the tumour protruding from the vagina. Pains were still present, but she was altogether very low and weak, and harassed by incessant vomiting. I succeeded in removing a portion, the size of a large orange, of the tumour. It was of a dark red colour, with a fleshy structure, but admitting of being lacerated with the fingers, in which manner I detached it. No more could be got



away, and she died a few days afterwards, utterly worn out by pain, hemorrhage, vomiting, and loss of sleep. I much regret an autopsy could not be obtained.

In some respects, though certainly not as regards its issue, this case bears a resemblance to one of Dr. Rigby's, in which, by successive operations, he removed 35 lbs. of tumour, which was gradually forced down by regular labour pains.

Dr. Thompson, of Omagh, has furnished me with the particulars of a case, in which the successful removal of a uterine tumour, weighing nearly seven pounds, was effected through the influence of parturient efforts, seconded by surgical treatment.

CASE VII.—The patient was a married woman, aged thirty, who never had borne children. When she came under Dr. Thompson's care she presented all the symptoms of extreme anemia. She was also very weak, and incapable of the least exertion, and for some days previously had retention of urine. On examination he found an enormous tumour filling the vagina, and distending the womb above pubes to the size of a five months' pregnancy. This tumour was so firmly jammed in the pelvis that it was impossible to reach even its greatest circumference. Its surface was smooth, pale, and traversed with large veins. It was not sensitive or painful, though its pressure on the rectum and urethra was productive of much distress.

The bladder was emptied, and an attempt made to pass a ligature round the upper part of the growth, but from the want of a proper instrument, this failed. In the course of the next few days the tumour began to protrude beyond the vulva, and to assume a gangrenous appearance, being flaccid, dark coloured, and fetid. As the fingers could now be passed up the vagina, and beside the tumour, with less difficulty than before, Dr. Thompson applied a tight ligature round the tumour as high up as he could reach, but not to its neck, and ordered a mixture of biborate of soda and strong infusion of ergot of rye. This acted in a most marked and decided manner on the uterus, producing pains similar to those of labour, and unlike anything she had before, and with the effect of bringing down the tumour so low as to expose the ligature. The pains continued until the whole tumour—which nearly equalled a mature fetus in bulk—was expelled, and hanging by a pedicle of about an inch in diameter. By this time she was reduced to a state of alarming prostration, and she was only kept alive by

the unremitting administration of brandy, &c. On the following day, as her condition was very little better, Dr. Thompson determined on the excision of the tumour, and this he effected with the ecraseur, having previously tied the pedicle as tightly as he could, to guard against any hemorrhage. This precaution was very needful, as there were found to be some large vessels traversing the pedicle. The tumour weighed  $6\frac{1}{2}$  lbs., and was of a fibro-cellular structure. The patient slowly rallied out of this state of extreme depression, and recovered without a bad symptom.

I would wish to draw attention to two points in the foregoing history: first, that the expulsive contractions of the uterus (without which the removal of the tumour could not, in all probability, have been effected) were artificially induced; and second, that the tumour was apparently of a polypoid nature. Neither—nor both—of these circumstances, however, exclude the case from the class now under consideration.

The following case was communicated to me. It very well exemplifies the danger attendant upon a long continuance of uterine efforts to get rid of a morbid growth.

CASE VIII.—The patient's age was forty-five; though married for twenty years she had never been pregnant. For many months she had been losing large quantities of blood from the uterus, so that she was extremely weak, and anemic to the highest degree. The uterus was enlarged to the size of pregnancy at five months, from the presence of a hard globular tumour, which could be felt through the thin and partially-open os uteri. Latterly she had severe pains in the womb at each menstrual period, and to relieve these she was in the habit of taking opiates pretty freely. To aid in the expulsion of the tumour she was ordered to take at next period one drachm of ergot, infused in a wine glass of hot water, three times a-day; this direction she followed.

Strong uterine action supervened, which so far expelled the tumour that its uterine attachment, which was very extensive, could be reached. No artificial means to detach the tumour, however, were tried, and the woman sank in the course of some days, apparently worn out by the protracted and unavailing uterine efforts.

The similarity between this and Case VI. is very great. They both strongly suggest the propriety of attempting the removal of the tumour by artificial means, under circumstances such as those

described. Gooch relates the history of a case closely resembling these; it occurred in the practice of Mr. Barrett, of Yarmouth. The patient sank under the long-continued fruitless expulsive pains, when a tumour weighing nearly four pounds was found growing by a thick stalk from the os uteri. Had this tumour been excised, as was done in Case VII., the woman's life might, in all probability, have been saved.

It has been already stated that the recorded instances are numerous in which expulsion of a tumour occurred as a sequel of childbirth, and that the danger of the complication was in proportion to its earliness after delivery. Time will not permit of allusion to any of the published cases which might very profitably be adduced to illustrate this part of the subject. One remarkable case I must mention, where the expulsion of a tumour, weighing nearly four pounds, followed six days after a three months' abortion, the patient recovering perfectly, and giving birth to a healthy, mature child, fifteen months subsequently. This remarkable case occurred in the practice of the late Dr. J. Beatty.

I must now bring this very imperfect memoir to a close. I purposely say imperfect, because I have not fully entered on the question of treatment; and also because little or no reference has been made to the researches of others on this subject.<sup>a</sup> In fact, the observations are based mainly on the results of my own experience.

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ART. III.—*Introductory Address at the Opening of the Winter Session of the Medical Society of the College of Physicians.* By FLEETWOOD CHURCHILL, M.D., President of the King and Queen's College of Physicians.

GENTLEMEN,

By the favour of the College of Physicians, it is my privilege to occupy this chair, and it becomes my duty to make a few observations, introductory to the opening of the session of the Medical Society.

I am not ashamed to confess that I feel it a great pleasure to be so honoured, and not the less so that I cannot plead a consciousness of desert.

<sup>a</sup> Dr. C. West is almost the only English writer who has treated this subject at any length.



Yet, and I trust you will excuse the avowal, the pleasure, like other pleasures, is not unmixed with sadness when I look round and see how few of my compeers of former years remain; how many of those are gone whose energies in the pursuit of truth, and whose great attainments, constituted so much of the value and ornament of the Society and its predecessor.

They have their "quiet consummation," and we "have entered into their labours," and in so doing we incur the responsibility of carrying on our science from the point where they left it, to the uttermost that our lives and abilities will permit.

The record of their labours is in itself the best commentary upon the value of such Societies as this, and may well spare you the trouble of listening to a more elaborate defence of them.

Perhaps, however, a few words upon one aspect of such Societies—I mean as Educational Institutions—may not be out of place, and it will not detain us long.

No greater mistake could be made, nor one fraught with more disastrous consequences, than for any one to conclude that he has finished his education when he has taken his degree and passed all his examinations. It is, in truth, just then that his true medical education begins. If we are to do any good in our day and generation; if we are to leave our science more advanced than we found it, we must be students to the end, feeling how little we know, how liable we are to prejudice, self-deceit, and error; and needing, therefore, in our daily struggle after knowledge, all the help we can obtain, and, above all, such help as these Societies afford.

I think I may assume that all, or nearly all, great discoveries, all true and extensive generalizations, have been the result of solitary labour and study. But being so, they have the unavoidable drawback of being more or less one-sided.

We are all, naturally perhaps, but unduly prejudiced in favour of the theory we have adopted, or the conclusions we have drawn from our observations, or the solution of any problem we have worked out; contrary arguments come with diminished force, and objections, being unwelcome, are ignored or lightly valued.

Probably the very best counteractive to this danger is a Society like this, where each has to submit his productions to the scrutiny of his fellows; to a discussion where no mercy will be shown to weak reasoning, careless observation, or defective generalization; but all justice done to care, and thought, and accuracy.

Any system, any theory, any supposed discovery that will not

stand such a test may be summarily dismissed; but in proportion as it involves truth, it is sure to stand; not, perhaps, exactly as the author moulded it; nor with its first beauty of form and completeness of detail, but shaped and moulded, by the larger experience and more matured judgment of others, into something far more valuable. The aggregate of facts contributed by the experience of such a Society may render a theory untenable, but it will pave the way for a wider and more correct generalization.

There is, however, one condition, without which we can as little obtain the full benefit of public discussion as of private research, and that is, that each for himself should aim at the discovery of truth for its own sake, and from no lower motive. Truth, I mean, whether it tells for or against our own views; truth, notwithstanding, it may be, the prejudices of education, or of partial training, or of limited experience. If we would be good or do good, truth always and by all means must be our supreme aim in science as well as in morals or religion.

If you permit me I will read you an extract from the inaugural address delivered at Glasgow by John Stuart Mill, embodying, in eloquent words, profound philosophic truth.

He says:—"The most incessant occupation of the human intellect through life is the ascertainment of truth. We are always needing to know what is actually true about something or other. It is not given to us all to discover great general truths, that are a light to all men and to future generations; though with a better general education the number of those who could do so would be far greater than it is. And the need we have of knowing how to discriminate is not confined to the larger truths. All through life it is our most pressing intent to find out the truth about all matters we are concerned with. Every time we have to make a new resolution, or to alter an old one, in any situation in life, we shall go wrong, unless we know the truth about the facts upon which our resolution depends. Now, however different the searches for truth may look, and however unlike they really are in their subject matter, the methods of getting at truth and the tests of truth are in all cases the same. There are but two roads by which truth can be discovered—observation and reasoning—observation, of course, including experiments. We all observe, and we all reason; and therefore, more or less successfully, we all ascertain truths; but most of us do it very ill, and could not get on at all, were we not able to fall back upon others who do it better."—pp. 2-12.

No doubt much of our observation is incomplete and inaccurate, and much of our reasoning specious rather than true; but if there be one feeling more than another calculated to supply the necessary caution and care, and to induce us to undergo the labour which the pursuit involves, I believe it to be the consciousness that our object is solely and simply the discovery of truth. And if we each bring this principle into exercise in our discussions as well as in our private pursuits, then, I think, no one will question the value of such Societies as Educational Institutions.

Any one who attended the meetings of this Society last winter must have been satisfied, not only that a number of valuable facts were accurately observed and reported, and inferences very cautiously deduced, but that the various communications and the discussions brought out very prominently that the discovery of the truth was the one object of all concerned. I can do no more than refer you to the great debates upon cholera and purpuric fever, or Black Death; the most interesting I have ever heard here or elsewhere, and displaying a vast range of experience, with the most scrupulous care that the deductions should only cover the facts.

The following list of names mentions the papers read during the past session, but it does no more, nor have I time to supply the deficiency by an analysis:—

DR. STOKES, President of the College of Physicians, opened the session with an Address.

REV. PROFESSOR HAUGHTON read a “Scientific Inquiry into some of the Cases alleged to produce Cholera.”

DR. HENRY KENNEDY—“Some further Observations on Hydrocephalus and its Treatment.”

DR. GRIMSHAW—“On the Sphygmograph.”

DR. LYONS—“On Abscess of the Liver and the question of puncturing it.” Also a “Case of Facial Paralysis of a peculiar form.”

DR. HUGHES exhibited a boy who had been affected with pemphigus to an extraordinary extent. He also related a remarkable case of Paralysis.

DR. FOOT—“On the Form of Depraved Appetite, known by the name of ‘Pica.’”

DR. MOORE MADDEN—“On Dreaming, considered specially in reference to Insanity.”

DR. MARCUS EUSTACE—“Symptoms diagnostic of Recovery in the different forms of Insanity.”



DR. HEAD—"Notes of a Case of Fatty Degeneration of the Diaphragm."

DR. BYRNE—"A Case of Abortion at five months, apparently depending on Choleraic Poisoning."

DR. P. C. SMYLY—"Some Cases of Paralysis following Blood-poisoning."

And in addition, as I have said, the pathology and treatment of cholera, based upon reports from different hospitals, occupied the Society on three special evenings, as did also the debate upon the malignant purpuric fever.

I cannot conclude these observations, gentlemen, without special reference to the meeting of the British Medical Association in Dublin last August. It is quite unnecessary for me to recall to your minds the splendid hospitality of Trinity College, of the honoured and distinguished President of the Association, who at that time so worthily presided over us in this College, or the other Societies who vied with each other only in showing honour to our guests. But I must say that if what I have pointed out be true, as to the value of a Society like this, embracing only one city, it must be more strikingly true of Societies embracing a province or a kingdom.

The pursuit of truth ought to be intensified, and the discovery of truth rendered infinitely more probable by the collision of so many men of different capacities, of varied training, and of diverse experience.

But, in such a gathering, there is more than this. "As iron sharpeneth iron, so the countenance of a man his friend," and from the personal contact and intercourse of men of the same profession and the same pursuits, there is, if I may so say, a vital electricity elicited which radiates through the whole body. Men whom we have known by repute, by their writings, become much more to us when personally acquainted, and I am sure many felt, as I frankly confess I did myself, stimulated and encouraged to work more diligently, and to think more earnestly, after that meeting than before.

Still a further good remains. We are not merely scientific inquirers nor social individuals, but members of a corporate profession, and if it have been felt hitherto that a want of union has been a crying evil in our profession, surely the blending of the entire profession into one body bids fair to correct this evil, and to give to us the advantages we need in our corporate capacity.

For these reasons, gentlemen, I feel bound to regard the meeting of last August, the first of the kind in the history of our profession, as the most important event that has occurred in my time, and opening a new era of improvement and advantage for us.

Gentlemen, it is as true of each generation of a profession as it is of an individual, that "no man liveth to himself," but for good or for evil we influence others, and are influenced both by those who have preceded us and by our contemporaries. "One soweth and another reapeth," is the old law of all progress, moral, social, or professional.

But if we gather up the rich stores handed down by our predecessors, if thus we are "heirs of the ages" past, let us not forget that we are trustees for the future. We are responsible for the transmission of our inheritance, not as we received it, but cultivated, improved, and enlarged.

Now, gentlemen, if I may trespass a little longer on your patience, I will pass from these generalities and direct your attention for a short time to some of the pathological reflex irritations we meet with in women.

I have selected this subject because of its great practical importance; not that these irritations involve danger to life, but they are so frequent that the practice of gynecologists consists very largely of them, and some of them simulate organic affections so closely that it requires some care and experience to avoid mistakes.

The frequency of these reflex disorders in females is remarkable; so far as I have any means of judging, they are much more common than similar disorders in males, partly, perhaps, because of the greater sensitiveness of the nervous system in females, and partly because there are no organs in the male which occupy the same influential position as the uterus and ovaries in females. Unless we realize this we shall be very much at sea in our management of such complaints.

We are consulted about these affections during the entire active period of uterine life; they are not very frequent until some years after puberty, but after marriage, even at an early age, they are sure to appear.

But the most peculiar circumstance about some of them is their occurrence, in a marked manner, about the time of the cessation of menstruation, and for some time afterwards, when the ovario-uterine functions are entirely in abeyance.

The principal reflex irritations which have come under my observation are the following:—1. Irritability of the bladder. 2. Pruritus of the external parts. 3. Ovarian pain. 4. Sciatica. 5. Nausea and vomiting.

About the “time of life” we may find any of the above, but more generally—1. Excessive secretion of air in the stomach. 2. Flushing and sweating of the face and head. 3. Pain about the umbilicus. 4. Headache and fulness.

I shall say a few words upon the most important of these affections.

1. *Irritability of Bladder*.—There are few uterine diseases which do not give rise to more or less of this troublesome complaint, but in some cases it becomes a fearful torment, especially at night. I have known patients obliged to rise eighteen or twenty times during the night to empty the bladder. In some cases, too, there is a degree of tenesmus which amounts to actual suffering. Only in a few cases have I found it to assume the form of incontinence of urine.

Generally speaking, the appearance and composition of the urine is natural; but in some cases, where the disease was of long standing, I have seen it loaded with lithates and mucus. Of course, the first question is as to the presence of a calculus, and, luckily, catheterism will generally solve this satisfactorily; and the next, as to what it is to be attributed. In the majority of cases it is the result either of granular inflammation of the cervical canal, excoriation of the cervix, or vaginitis; and if, there being no stone, we find either of these, we may be satisfied that it is the origin of the reflex irritation.

2. *Pruritus of the external parts* may exist without eruption or any apparent change in the skin; and in such cases no external application is of any use. Unfortunately these cases are generally of old standing, from the natural reluctance of women to consult any one about such a complaint. I have recently had under my care two ladies in whom it had existed fifteen or sixteen years, and one of them assured me that she had not had a whole night's sleep during that time. Like the irritability of the bladder, it is always worst at night. We see it at all ages. I have a patient of sixteen under my care at present, and more than one over fifty years.

I have no words to tell you the distress it occasions; it is far worse than pain. One patient told me that she was nearly out of her mind, and another that all her labours put together would be less intolerable.



Now, I believe in all cases where there is no eruption externally, you may regard the pruritus as a reflex irritation from either, 1. Vaginitis; or, 2. Excoriation of the cervix.

3. *Ovarian pain*.—Reflex ovarian pain from some uterine or vaginal disease is perhaps the most common of these irritations; but less complaint is made of it, because it is generally transient, though recurring. It may occupy the situation of either ovary, or both, but I should say that the left is more frequently affected. If you examine very carefully, externally and internally, you will find no tumour or enlargement, and no tender spot. The patient can breathe fully, and the pain is rarely increased by movement. So far, all the evidence you can obtain negatives the supposition of organic disease; and when, in addition, you find some disease of the uterus, I think you need have no doubt of the reflex character of the complaint.

4. *Sciatica*.—In these cases the pain resembles ordinary sciatica exactly in its seat and character, and in several cases I have seen the patient treated for sciatica.

I remember a very remarkable case which I saw through the kindness of Dr. Stokes. The lady had been treated in the country for sciatica, without benefit, and Dr. Stokes at once suspected some uterine ailment. When I saw her she could not stand upright, and was barely able to limp across the room. The pain was severe, nearly constant, and increased by movement. Menstruation was regular, but she had a leucorrhœal discharge. On examination I found an irritable erosion not larger than a sixpence, and until I had tried the effect of curing this, I could scarcely believe that all the suffering was a reflex irritation. As the erosion got better the sciatica diminished, and by the time it was cured the sciatica had disappeared.

Another case I saw very lately was sent to me by a physician in London. She was thought to be suffering from ordinary sciatica, and had been blistered and cauterized, and otherwise treated without relief. My friend, who is an accoucheur, proposed an examination, and found a cancerous uterus. When I saw her by far the more severe part of her sufferings was the pain along the sciatic nerve.

Nothing in the locality or character of the pain will enable us to distinguish between true and reflex sciatica. Only by a careful internal examination can we arrive at a satisfactory conclusion.

5. *Nausea and Vomiting*.—In pregnancy this symptom is, of

course, a healthy reflex action, though even then it may be carried to excess. But if, as I think, the origin of it then is some irritation, occasioned by the presence of the child in the lower segment of the uterus, we should be prepared to find a similar effect produced by other irritations in this situation. And this is exactly what we do find. With many forms of uterine disease there is more or less sickness of stomach; in some cases I have seen it assume the periodic character and limitation of morning sickness. In a case under my care at present, where the lady has vomited more or less of every meal for some months, it has a uterine origin. I suspect the same in all cases of hysteric vomiting which have been recorded.

The only guide to a correct diagnosis is first to ascertain, by a careful investigation, the absence of organic disease of the stomach, and then to observe the effect of remedies applied to whatever form of uterine disease we discover.

I need not enter into details upon the reflex irritations developed about the "time of life," as it is called; the flushing and flatulency, the headache, and the pain about the umbilicus, as these are, I am sure, sufficiently familiar to all. I will merely make two remarks. 1. That, despite the fears of our patients, I have never seen any ill termination of these cases, nor do I believe that this period of life is, *per se*, more dangerous than another. More men die between forty-five and fifty years than women. 2. I believe that in all cases where these symptoms are unusually severe, something more than the physiological changes will be discovered by an examination. I have generally found either erosion or granular inflammation of the cervical canal or vaginitis. I would therefore strongly advise that an internal examination should be made in all such severe cases.

As to the diseases giving rise to these reflex irritations, they are easily enumerated, and I am inclined to think that these reflex effects are not in proportion to their intensity.

Vaginitis; vascular tumour at the orifice of the urethra or uterus; erosion of the cervix; ulceration of the cervix, whether simple or malignant; or granular endometritis, constitute, I think, the entire list; nor can I say that there is an invariable relation between the kind of disease and the reflex irritation excited. So far as my experience goes, I should say that any of the diseases I have enumerated may give rise to any of the reflex irritations, the only exception being cancer, which certainly produces the sciatic pain oftener than any other reflex irritation.

I shall not detain you further, gentlemen, with the details of treatment. The essential matter is to cure the original disease, and if you do so you will find the secondary affection disappear, *pari passu*, in a most satisfactory manner. I do not generally give internal medicine, except to keep the bowels free, with a tonic, if necessary, and perhaps an anodyne suppository.

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ART. IV.—*Case of Empyema with Inequality of the Radial Pulses, and Paralysis of the Diaphragm.* By JAMES CUMING, M.A., M.D.; L.K.Q.C.P.; Professor of Practice of Medicine, Queen's College, Belfast; Physician to the Belfast General Hospital, &c.

THE following case<sup>a</sup> is, I think, of sufficient interest, in a diagnostic point of view, to make it desirable that it should be recorded.

Neal Kennedy, aged thirty-five, unmarried, labourer, was admitted into the General Hospital July 30th, 1867.

*History.*—Several members of his family died of tubercular diseases. Seven years ago he had been a patient in this hospital, the only record of his case to be found being the name of the disease for which he was admitted—"Hydro-pneumothorax"—and the period during which he was an inmate—namely, fourteen days. From this illness he states that he completely recovered. Two years ago he passed through an attack of typhus fever, for which he was treated in the Union Hospital of this town. With these exceptions his health has been always good; habits regular and temperate. He is a well-built man, pale, slightly bald, with an intelligent countenance, and rather prominent eyes.

About six months ago he began to suffer from pain in the left side, which he describes as having been of a catching character. He continued to be able to work for some months after the commencement of the pain. His strength and appetite, however, gradually failed, and his breathing became oppressed. He placed himself under medical treatment, and was blistered and purged without any benefit.

<sup>a</sup> Reported by Mr. Robert S. Hudson, clinical clerk.



At present he complains principally of weakness; he has some diarrhea; no pain in side; very little cough, and the dyspnea is not at all considerable. His appetite is tolerably good; decubitus on back or left side; he sleeps pretty well.

*Physical examination.*—The left side of the thorax is observed to be dilated, its intercostal depressions effaced anteriorly, and no respiratory movements visible. A soft, painless, inelastic tumour is observed external to the left nipple; its diameter at the base is about two inches, and it covers portions of the seventh, eighth, and ninth ribs; the skin covering the tumour is not discoloured, nor is there any pulsation in it.

The impulse of the heart is visible on the right side, below, and rather external to the nipple. On palpation no vocal fremitus is to be felt in the left side, except close to the spine posteriorly. The circumference of the left side, on the level of a line passing from the spinous process of the seventh dorsal vertebra over the nipple, is  $21\frac{1}{2}$  inches; that of the right 19 inches.

On percussion absolute dulness is found to extend over the entire left side, and for about an inch beyond right margin of sternum. No respiratory sounds are audible, except in the neighbourhood of the spine; no vocal resonance. Respiration puerile on right side. There is distinct bulging in the epigastric and hypochondriac regions, owing evidently to displacement downwards of the diaphragm and of some of the abdominal viscera. Some tenderness on pressure is complained of in the left hypochondrium, where the depressed and resistant diaphragm can be readily recognized by the finger.

Pulse 72; in the right wrist tolerably full and soft, in the left very small—a fact to which my attention was first drawn by one of the students who surrounded the bed. A similar difference, but not so marked, was observed in the carotids. No murmur with the action of the heart; sounds normal. Pupils equal.

After consultation it was determined that the thorax should be tapped, as there could be no doubt of the existence of pus in the cavity of the pleura. Before the period arranged for the operation, however, he began to bring up by coughing considerable quantities of pus, and I hoped that in this way the entire contents of the pleural sac might be evacuated. During two days and nights the matter continued to be expectorated; the entire quantity got rid of in this way amounting to fifty-six fluid ounces. The impulse of the heart was now visible at a point higher than before by about an intercostal

space, and the circumference of the left side had diminished by three-quarters of an inch, being now  $20\frac{3}{4}$  inches. The amount of the expectoration was, however, diminishing a good deal, and the constant efforts to bring it up had become very distressing to the patient. He was totally unable, from this cause, to lie down or get any sleep. The pulse rose to 116, the difference in the two sides being still considerable; but it was thought rather less marked than it had been previously, and an inflammatory flush had appeared in the left hypochondrium, where tenderness had been previously noticed on pressure, pointing to the probable danger of perforation of the diaphragm in that situation. Under these circumstances I thought it would be unwise to delay any longer the puncture of the thorax.

The operation was performed by my friend and colleague, Dr. William MacCormac, the opening being made through the tumour and in the eighth intercostal space. At the time of the operation, and during the two subsequent days, 173 fluid ounces of good pus, devoid of odour, flowed from the opening. The operation was followed by considerable relief of the general symptoms; the patient was able to lie down and get some sleep. The intercostal depressions became now manifest; the heart passed over to the left of the sternum; the left radial and carotid pulses acquired fulness, and by the end of the third day no difference could be any longer observed in them. Indeed, more than one of the various medical men who had kindly examined the patient with me at different times, before the paracentesis, and while the inequality existed, on being asked to compare the pulses in the two wrists, were inclined to consider that the left was now rather the fuller and stronger. The discharge gradually diminished to about two ounces daily; the appetite and strength improved rapidly.

Without entering into details of the progressive changes which ensued, I may now give an account of the physical examination of the chest a fortnight after the chest had been tapped. The girth of both sides had diminished—that of the right side being now  $18\frac{1}{4}$  inches, that of the left  $18\frac{5}{8}$  inches. Taking the level of a line passing from the spinous process of the eighth dorsal vertebra through a point an inch below the nipple, we find that above this line the left side is resonant on percussion—duller than the right—but still moderately resonant. Within the same space vocal resonance and fremitus are distinctly recognizable, and the sounds of respiration are audible, being somewhat weaker and more harsh

than those of the opposite side. There is no trace of râle of any kind, nor is there any friction sound.

Below the line mentioned vocal resonance and fremitus are altogether absent; no respiratory sound whatever is audible. On percussion we find amphoric resonance in front when the patient lies on his back, and some dulness at the most dependent part posteriorly. The situation of the resonance and dulness changes with any change in the position of the patient, but does not reach a higher level than that of the line above mentioned. Pus flows pretty freely from the wound when the patient leans well forward, and a probe introduced through the wound can be moved freely in a large cavity. It was now evident that the lung had expanded considerably, but not sufficiently to fill the entire side, and that it had become adherent to the thoracic parietes, leaving between its base and the superior surface of the diaphragm a locus filled with air and matter. The heart's sounds were quite normal, and unaccompanied by any echo or splashing.

With the diminished circumference of the upper part of the thorax, the bulging at and below the base became more noticeable, and a curious phenomenon became observable—namely, a depression of the prominent portion of the epigastrium and hypochondria, during inspiration, and an elevation during expiration; both these movements being the opposite of those observed during health. This depression was more evident when a somewhat forcible inspiration was made, and was much more marked on the left side, but even on the right side it was distinctly observable both by inspection and palpation. The amount of discharge was now about one fluid ounce daily. There was scarcely any cough; respiration free; appetite good, and strength fair. The patient remained up the entire day, and walked a good deal about the ward in which he was. From this period until he left hospital there was little change in the symptoms. The bulging diminished gradually, but the abnormal condition of the respiratory movements continued, although no longer recognizable, except when the hand was placed on the surface of the epigastrium or hypochondria. He continued to improve steadily, with the exception of some inflammation of the lymphatics of the right leg, which yielded readily to rest, and the application of the flannel bandage recommended by Sir Dominic Corrigan. He was able to remain some hours daily out of doors, and left hospital at his own request at the end of September.



About the end of October I visited him, at his own request, at his mother's house, in a filthy little street in one of the oldest and most neglected parts of the town. I found that he had been for some time getting worse; he had not been able to get nutritive food, and he had ceased to take the cod-liver oil which had been prescribed for him. The discharge had increased and become very offensive in smell, and diarrhea had set in, with a good deal of irritability of stomach. There was scarcely any cough; no expectoration; and the condition of the chest was very little changed. I advised him to go to hospital again, which he wished to do. However, about a fortnight after I learned that he was dead.

I have not entered into any account of the treatment, as there was nothing worthy of remark in the measures employed. Tonics—a moderate amount of stimulants and cod-liver oil forming the staple of the treatment.

*Remarks.*—All observers agree as to the fact of the pulse remaining unaffected in cases of empyema. A case by Larrey, in which extreme feebleness of the pulse in the large arteries coincided with cardiac displacement, is quoted by Walshe,<sup>a</sup> who is not inclined to consider that there was any mutual dependence between the two circumstances. Murmurs with the sounds of the heart have been observed, probably dependent on torsion of the aorta, in cases of great cardiac displacement, and an instance<sup>b</sup> is given of empyema of the left side, in which an aortic bruit, the result no doubt of pressure, was audible from the last rib upwards along the left side of the spine for about five inches. I am not aware, however, of any case being on record in which a difference in the pulses was noticed. In a recent and excellent work<sup>c</sup> on diseases of the lungs, the equality of the radial pulses is referred to as a diagnostic mark which may be relied on in cases of doubt as excluding the idea of empyema. Had the empyema been a pulsating one, as in the well-known cases reported by Dr. M'Donnell,<sup>d</sup> the diagnosis might have become very embarrassing. It would be easy to suggest modes by which this phenomenon may be caused. My own opinion inclines towards seeking for the explanation in some narrowing of the arteries by torsion or otherwise, inasmuch as the absence of any evidence of venous

<sup>a</sup> Diseases of the Lungs, 3rd ed., 1860, p. 263.

<sup>b</sup> M'Donnell. Dublin Journal of Medical Science, Vol. xxvi., p. 437.

<sup>c</sup> Fuller. Diseases of the Lungs, 2nd ed., 1867, p. 184.

<sup>d</sup> Dublin Journal of Medical Science, Vol. xxv., p. 1.

congestion puts the idea of its having been caused by direct pressure of the fluid out of the question. Whatever be the explanation, however, the possibility of the existence of an inequality of the radial pulses in a case of empyema, the inequality disappearing after the evacuation of the fluid, is a fact of some clinical importance.

The alteration in shape and movements observed at the base of the thorax and at the upper part of the abdomen evidently depended on the condition of the diaphragm. The paralysed and probably degenerated condition of this muscle, caused by the long-continued pressure, and probably, also, by the effect of the inflamed state of the pleura, prevented the action which is normally exerted on the base of the thorax by the fibres which arise from the ensiform cartilage, and from the cartilages of the lower ribs—an action which is antagonistic to any forward movement of that region. Besides, the depression of the diaphragm, as well as of the upper abdominal viscera in contact with it, owing to the great mechanical pressure exerted by the superincumbent mass of fluid, would tend powerfully in the same direction. It was very remarkable, however, that the bulging should have continued after the removal of the great bulk of the fluid. This can only, I think, be accounted for by supposing that the diaphragm had contracted some adhesions with the parts with which it had been brought into contact during the continuance of the pressure. Duchenne,<sup>a</sup> criticising Dr. Stokes'<sup>b</sup> observations on the condition of the diaphragm in some cases of empyema, observes, with justice, that paralysis of this muscle must, of necessity, be followed by an increase of its natural convexity, and by its becoming more elevated in the cavity of the thorax, owing to the action of the abdominal muscles. Some cause must accordingly have been in operation to retain the muscle in its anomalous position.

The explanation of the reversal of the usual respiratory movements is also to be looked for in the passive condition of the diaphragm, allowing it to yield to the action of atmospheric pressure when a partial vacuum was formed in the chest by the action of the other respiratory muscles during inspiration, and the elevation during expiration to the pressure exerted by the lungs then acted on by the elasticity of the thoracic parietes.

<sup>a</sup> De l'Electrisation Localisée. 2nd ed., 1861, p. 727.

<sup>b</sup> Dublin Journal of Medical Science, Vol. viii., p. 197.

Duchenne<sup>a</sup> suggests that valuable indications may be drawn in cases of empyema from a deficiency of isochronism in the movements of the thoracic and abdominal walls during inspiration and expiration, and gives some cases of empyema observed by Racle and others, as well as by himself, in which the hands placed one on each hypochondrium were moved in contrary directions during respiration—that placed on the sound side being elevated during inspiration and depressed during expiration, while that placed on the side where copious effusion existed was moved in the contrary direction. When this phenomenon is observed, he thinks that the diagnosis of paralysis of one-half of the diaphragm may be made, and that a probability is established, as had, indeed, been suggested by Dr. Stokes, of the effusion being the result of an acute inflammatory process, and not a simple hydrothorax. In this case Duchenne's sign did not exist, the action of the diaphragm—although the empyema was single—being null on both sides. At the same time some weight must be attached to the great amount of malposition of the diaphragm, altering completely the direction of its muscular fibres.

ART. V.—*Observations on the Treatment of Stricture of the Urethra by the "Stricture Dilator."* By ROBERT M'DONNELL, M.D., F.R.S., Fellow of the Royal College of Surgeons; one of the Surgeons to Dr. Steevens' Hospital, Dublin.

MR. BERNARD HOLT, in his work on the immediate treatment of stricture of the urethra, very correctly observes that nature will not cure a chronic stricture. The question is, how far can we by art hope to effect a complete and permanent cure of the complaint? to what extent is this object attained by the so-called immediate plan of treatment?—are all cases equally suited for the employment of the stricture dilator, and if not, how are we to discriminate those which are most suitable for it?

These are questions which have still to be answered, and in adducing some cases which go to show that perfect recovery does not always follow this mode of treatment, I hope I shall not be understood in any way to detract from the merits of Mr. Bernard

<sup>a</sup> Loc. cit., p. 728, et seq.



Holt, who, by his resolution and perseverance, has now fairly established a mode of practice which many will admit to be among the greatest improvements which surgery has achieved of late years.

Every hospital surgeon knows how difficult it is to follow cases after they leave hospital; when we wish to obtain precise information on any point in which length of time is an element, we then learn how hard it oftentimes is to know the result of operative proceedings after the lapse of some months or some years. The cases which I have now to record were, however, easily kept in sight for some time. The patients were inmates of the Mountjoy Convict Prison, and I have been able to ascertain their exact condition after operation, partly from personal observation, partly through the assistance of Dr. Kelly, of Spike Island Prison, and Dr. Travers, of Rostellan.

In all the cases recorded in this communication the directions for the operation given by Mr. Holt were followed. In the instances in which the stricture was very close I dilated it with bougies for some days, until a No. 4 instrument could be passed. I always operated upon the patient standing, his back firmly fixed against a wall. The instrument is more readily introduced in this position than when the patient is lying down. I may add that I have never found it necessary to use a dilator with the directing-rod hollow; if the patient has for a time retained his urine when the dilator is fairly introduced into the bladder, I have invariably found the water to flow along between the blades of the instrument, not leaving any doubt of its being in the bladder. In fact, I should lay it down as a rule, never to be departed from, that unless the water flows in this way, so as to make it a matter of certainty that the bladder has been fairly reached, the dilatation should not be proceeded with.

Although in these pages I mention only those cases which I was able to follow carefully, owing to their being kept within prison walls for some years, yet I may say that besides these I have operated on a considerable number of others, both in hospital and private practice, yet I have never met with any untoward result; in two cases only did any considerable constitutional disturbance supervene, and this subsided after three or four days. When I compare this with the ill effects I have myself witnessed, as well in instances of internal as external section of strictures, and even following too hasty dilatation with bougies, it is, I must confess, perfectly astonishing. In short, were it not for the facts staring us

in the face, one could not believe that the forcible splitting of an old stricture could do so much good and so little harm. It proves how essentially tentative everything in surgery is.

When operating on my first cases I had the benefit of Mr. Rawdon Macnamara's assistance. To this gentleman we are indebted for the introduction of this operation into Ireland, and his earnest advocacy has not only won for it a high place in public favour, but has in a great degree overcome the timidity of those practitioners who, like myself, at first regarded with fear a procedure which seemed so heroic.

The following is a table of the cases operated by me upon in the Mountjoy Prison:—

TABLE OF CASES, ETC.

No. of the Case	Name	Age	Date of admission to Hospital for operation	Probable duration of the stricture	Date of discharge from Hospital	Subsequent Condition
1	M. L.	30	1 Aug., 1863,	about 3 yrs.,	21 Sept., 1863,	4 years after operation, no symptom of stricture.
2	G. W.	28	6 Aug., 1863,	4½ yrs.,	6 Aug., 1863,	4 years after operation, Dr. Travers reports slight stricture.
3	E. S.	37	21 May, 1864,	4 yrs.,	20 Aug., 1864,	3 years after operation, Dr. Kelly reports No. 9 catheter passes easily.
4	F. C.	27	28 Sept., 1864,	2 yrs.,	15 Oct., 1864,	1 year and 5 months after operation, no return of stricture.
5	R. H.	22	24 Sept., 1864,	2 yrs.,	15 Oct., 1864,	3 years after operation Dr. Travers reports—passes water in a good stream; No. 8 catheter passes.
6	J. R.	22	5 Dec., 1865,	1½ yrs.,	19 Dec., 1865,	1 year and 3 months after operation, no return.
7	J. M'C.	36	23 July, 1866,	6 yrs.,	3 Aug., 1866,	Relapse 4 months after operation.
8	J. M'C.	36	6 Nov., 1866,	—	7 Dec., 1866,	Died of cholera a month after second operation.
9	J. F.	24	1 Aug., 1866,	2½ yrs.,	15 Aug., 1866,	1 year after operation, no larger than No. 7 catheter can be passed.
10	P. K.	33	21 Sept., 1866,	3 yrs.,	8 Dec., 1866,	6 months after operation, No. 9 passes readily.
11	J. R.	33	21 Nov., 1866,	4 yrs.,	8 Dec.,	6 months after operation, No. 9 passes readily.
12	J. C.	39	13 April, 1867,	4 yrs.,	10 May, 1867,	3 months after operation, No. 10 passes readily.

Now, on looking at this table the first question one is inclined to ask is—Is it certain that stricture really existed in each of these cases? Every surgeon who is candid enough to admit it will

confess that now and then patients have come before him complaining of small streams, cork-screwy, &c., and upon attempting to introduce a rather small, or even moderate sized instrument, he has found some obstruction, and concluded that there is a stricture; yet afterwards it may be with a larger instrument or a different curve he has easily got into the bladder—in fact, some lacuna or fold of the mucous membrane—some hitch in the vicinity of the triangular ligament; or it may be some enlargement of the prostate has offered a temporary obstruction to the instrument; yet no stricture has really existed.

In all of the foregoing cases I had recourse to an expedient which, I conceive, leaves no doubt that stricture actually did exist. I used a double-length catgut bougie, made with a gum elastic catheter to slide over it—an instrument devised, I believe, by the late Dr. Hutton, and much used by that eminent surgeon.

The catgut bougie (of small size) is first introduced into the bladder; being double the usual length, a long piece projects from the urethra; on this a catheter, open at each end, is slid; the end of the catgut being held, the catheter is slipped on, and is thus conducted along the urethra; if it comes to a dead stop at any point, it there has met with a stricture too close for it to pass. The narrowing permits the catgut to get through it; to the catheter it says no. According to the size of the catheter we know the size of the stricture. No lacuna, fold of membrane, false passage, or enlargement of the prostate can now deceive us. The conducting bougie would certainly steer the catheter past any such obstructions. I think this method may be considered a crucial test for the existence of stricture, and it was applied in each of the cases mentioned in the above table. I am then, I believe, justified in stating that stricture existed in every one of these patients, as in no one of them could I at first slip a No. 2 catheter along the conducting bougie into the bladder.

At the time (August, 1863) when I operated upon cases No. 1 and 2, Mr. Rawdon Macnamara and Dr. Cruise were present. They will remember, I do not doubt, that one of these patients made a considerable outcry, and that in his case the thrusting in of the dilator required an amount of force which to me, as a beginner, was alarming. The other patient (G. W.) merely said, "Oh, oh," and looked astonished at the unaccustomed sight of a large stream gushing from a large-sized silver catheter. Very little force was necessary, and the introduction of the dilator was accompanied by a



slight snap, as if a thread tied round the urethra had given way. This patient was surprised when he was directed to go to bed, as he said the operation had cost him no more pain than the introduction of an ordinary instrument. This case (No. 2, G. W.) is a most important one. Two months before this he had been in hospital, under treatment by gradual dilatation; six weeks after leaving hospital, with a urethra able to admit a No. 9 bougie, I could not pass No. 2 along the railroad catgut. Yet this stricture, which, under ordinary treatment, has such a tendency to return, is split, with little or no pain, and four years after he is reported as having but slight stricture.

CASE No. 5 (P. H.)—Was examined by Dr. Cruise with the endoscope some months after he had been operated upon; indeed this is one of the cases alluded to by Dr. Cruise in his classical paper on the Endoscope in No. 78 of this Journal. We perceived a transverse slit, somewhat crescentic in form, at the spot where the constriction had been.

Nos. 7 and 8 relate to the same individual. This is the only case in which anything of rapid return of the stricture took place, and as the patient died of cholera within a month after the second operation, and as an opportunity was afforded of examining the urethra, the case is one of importance.

I exhibited the bladder and urethra at the Pathological Society on February 16th, 1867.

The following is the report as published in the proceedings of the Society:—

"Dr. R. M'Donnell brought before the Society the bladder and urethra of a patient who had suffered from a stricture, which, shortly before the individual's death, had been treated by the method called 'bursting.' The following was the history of the case:—J. M'C., aged thirty-six years, was admitted to the hospital of the Mountjoy Convict Prison, on July 23, 1866. He stated that he had been suffering from stricture of the urethra for six years. He could only pass water in a very small stream, or in drops. At first only a small catgut bougie could be introduced; after dilatation up to No. 4 was accomplished Holt's dilatator was introduced, and the stricture was burst. Immediately after a No. 10 silver catheter was introduced into the bladder. All went on well, and four days later the urine was drawn off through a No. 10 silver instrument. He was discharged from hospital in August

3rd. On November 6th he was again admitted to hospital, stating that the stream had become as small as ever. On examination it appeared that it was not possible to introduce into the bladder an instrument larger than a No. 1 catheter. At his own request the operation of bursting was again performed as before. He was dismissed from hospital on December 7th. He died suddenly of cholera on December 22nd. Dr. M'Donnell removed the bladder and urethra, and they were examined carefully by Dr. Cruise, Mr. William Stokes, and himself, soon after removal. The appearance, however, at that time was not materially different from what the members had now an opportunity of seeing. A No. 9 catheter could readily be passed along the urethra. Except for the hypertrophied condition of the muscular coat of the bladder, and the dilatated state of the portion of the urethra behind where the stricture had been, there was no other sign of the disease having existed. There certainly did not appear to be any granular condition of the mucous membrane in the vicinity of the triangular ligament where the stricture had existed, neither was there any marked induration of the submucous tissue. Dr. M'Donnell had at first thought that there was an appearance indicating that the dense fibrous, submucous tissue had been split by the process of dilatation, while the mucous membrane itself had been only slightly, if at all, lacerated. On inspecting, however, other urethræ he found a similar appearance. The interest of this case was, perhaps, in the fact that it showed so little sign of disease remaining. The case was one in which the stricture had unquestionably returned in a comparatively short time after being burst."

Besides the cases given in the table, I met with two cases among the convicts in the Mountjoy Prison, in which the immediate plan failed to afford even temporary benefit. As they were cases of quite an exceptional character, I do not think it would be fair to group them with ordinary cases of stricture.

A military prisoner, committed for an offence of the most serious character, gave the following account of his case:—Some years before he had a bad stricture, which became complicated by perineal abscess. A surgeon with difficulty succeeded in getting a gum elastic catheter into his bladder, and having succeeded, he left it there for a month. When it came to be withdrawn it had to be dragged out with great force, and as the patient described it, it was encrusted with calculous matter, so that the end of it was as thick as his little finger. Of course the urethra was lacerated from

one end to the other, and when he came under my notice the urethra beneath the penis, as far back as the scrotum, was gone. I could, with difficulty, introduce a small silver probe into the orifice, from which the water came. Indeed I could not do so until the patient, holding up the penis, forced out some urine from the little orifice in the angle between the penis and scrotum.

The whole urethra had, in truth, been destroyed, and there only remained a fistulous trajet from the bladder, where the urethra formerly had been. I gradually dilated this channel with bougies, but it narrowed up again with extreme rapidity. At last, in despair, I introduced the dilator, and burst it. It did no harm, but it did no good; the tendency to narrow was as great as ever. The patient was obliged to keep his disease at bay by the daily use of a bougie kept in for half an hour.

The second case to which I allude was a very similar one, in which almost the entire urethra had been made into a fistulous channel by a strong injection of nitrate of silver used to cure gonorrhea.

No portion of the urethra had ever entirely sloughed away, but abscess had formed, and fistula and the whole length of the urethra was of almost cartilaginous firmness. In this case there was great difficulty in dilating the urethra, and it narrowed again at once. I now also tried the dilator. Here also it did no harm, but it did not at all check the tendency to close again. After one day had elapsed it was impossible to introduce so large an instrument as on the day before.

I am clearly of opinion that is not, in general, good practice in the treatment of stricture to introduce very large instruments, as No. 12 or 13. I have satisfied myself by observations made by injecting the bladder and urethra with wax, that even in subjects of large size, the portion of the urethra begirt by the triangular ligament rarely exceeds the dimensions of a No. 10 catheter. To dilate, therefore, beyond No. 10 or 11 is, then, to dilate beyond the normal calibre of the canal; the urethra is kept in a state of irritation by this, and generally resents such treatment. I am convinced by experience that when the regular introduction of an instrument is necessary in order to keep a stricture at bay, it is, as a rule, better not to go beyond what may be considered the normal size of the canal at the triangular ligament, and, as I have said, this does not generally exceed No. 10.

In three cases only of those which I have tabulated was there any



decided tendency in the disease to return observed, and in only one to return promptly. To what was this tendency to return so quickly due? This is a question which I am at a loss to answer. I must content myself by recording the fact. Dr. Cruise, whose frequent use of the endoscope has made him familiar with the pathological changes in the urethra, is inclined to believe that the immediate plan will be found best suited for cases of true organic stricture, and that the obstruction arising from chronic inflammatory constriction, produced by the granular state of the canal, is less likely to be benefited by it. Yet we could find no evidence by the careful examination of the urethra in this case, that granulations had existed; but then it must be recollected that the stricture had been treated a second time, and, for so far, with success, at the time when the opportunity of examining it had occurred.

ART. VI.—*Reports in Operative Surgery, from the County Down Infirmary.* By JOHN K. MACONCHY, M.B.; F.R.C.S.I.; Surgeon to the County Down Infirmary.

- I. CASE OF AXILLARY ANEURISM AND AORTIC PATENCY—LIGATURE OF THE SUBCLAVIAN ARTERY—CURE OF ANEURISM.
- II. CASE OF POPLITEAL ANEURISM—LIGATURE OF THE FEMORAL ARTERY—CURE OF ANEURISM.
- III. POPLITEAL ANEURISM TREATED BY PRESSURE—OCCURRENCE OF ANEURISM OF AORTA DURING TREATMENT.
- IV. AN OPERATION TO REMEDY THE DEFORMITY OCCASIONED BY THE CONTRACTION OF THE CICATRIX OF A BURN.

HUGH GRANT, aged seventeen years, farm labourer, admitted to the County Down Infirmary, 2nd Oct., 1867. A small, delicate-looking lad; below the average in muscular development, with an anxious, worn expression, having a pulsating tumour in the right axilla, about the size of a small hen egg, with the larger end above, on a level with the coracoid process, and the other end a little below the inferior edge of the great pectoral muscle; the whole arm is swollen, and of a colour approaching to livid; he can move the upper arm, but with difficulty; the sensation of the lower part of it is impaired; there is complete paralysis of both sensation, and motion, from the elbow down; the pulsation of the brachial and radial arteries is very weak, while on the opposite side it is jerking

and obvious. The pulsation in the tumour is unmistakably eccentric; there is a loud double bruit in it, and it can be easily emptied, when pressure is made on the subclavian artery; the coats feel thin; he complains of severe pain in the tumour and arm.

There is most remarkable visible pulsation in all the large arteries of the body; a loud double bruit de soufflet is heard, with the heart's action, louder in the vicinity of the aortic opening than elsewhere, completely masking, or replacing, the second sound of the heart; it is propagated along the arteries with a gradually diminishing intensity.

The pulse is sharp and jerking, over 120, and seldom counting the same for two consecutive half minutes.

The dulness on percussion in the cardiac region is little, if at all, in excess of the normal amount. He has a troublesome hacking cough, not attended with any expectoration.

*History.*—He says that previous to four weeks ago he was quite healthy; could run, and jump, and was not shorter in the wind than other lads of his age. About that time he was engaged in mowing (the scythe is used more commonly in this country than the reaping hook for harvesting), when suddenly he was attacked with pain in the arm, soon followed by swelling, discoloration, and loss of feeling and motion, in the forearm. About nine days previous to admission here, he first observed the tumour in his armpit. He believes it to have doubled in size since then. His state on admission was such that I feared the cardiac and general derangements would bring about a fatal result before danger became imminent from the aneurism, so that at first, treatment was directed to these symptoms, and he was given a good nutritious dietary to get up his strength. After six weeks his cough was gone; the heart's action certainly more equable, though the pulse never fell below 120. His strength was improved notwithstanding frequent epistaxis. During this time the aneurism increased very little, being now about as large as a good-sized hen egg.

Nov. 12th.—The brachial artery was found to have ceased pulsating altogether. This must have happened during the few previous days, probably from the slipping of a clot in an examination of the tumour. The pulsation, however, was as brisk as ever in the aneurism. Nature had, in fact, anticipated me in stopping the current on the distal side of the tumour (as I had intended to try distal pressure), with no good effect. Two days after a large vessel was felt in the musculo spiral groove; the pulsation was

unchanged in the tumour, and it could be emptied almost as completely as before.

After this the tumour increased more rapidly, chiefly by extension downwards, though it also approached the clavicle, and was pushing the bone upwards. During the first week of December it became evident that longer delay was inadmissible, as the rapid increase of size, and the thin feel of the coverings, threatened to make it a diffuse aneurism. Having ascertained that the current could be stopped in the subclavian for two minutes without any increase of cardiac irritability, I determined to ligature the third stage of the subclavian artery.

Dec. 7th.—Assisted by Dr. W. MacCormac of Belfast and Dr. E. Nelson, I proceeded to operate. The patient was placed on a table with the shoulders elevated and well situated for a nearly horizontal light. Chloroform was given by Dr. Nelson, the pulse being well watched. It, however, improved in steadiness and volume, as anesthesia increased. As soon as insensibility was complete, the head being well held over to the left by Dr. MacCormac, and the arm depressed as far as practicable by an assistant, the usual operation was performed, the steps of which it is needless to describe here with accuracy. Suffice it to say, I adopted the  $\angle$  shaped incision, and it gave me little room enough. There were two external jugular veins, both of which I contrived to work over to the inner side of the wound. Except for the skin and superficial fascia, and for the fascia that binds down the homo hyoid muscle, the knife was not even in my hand. Under the deep fascia there was a regular plexus of veins, through which I pushed aside the areolar tissue with a director and forceps. Owing to the elevation of the clavicle the depth at which the artery was found was very great. The needle was passed from below upwards, and outwards. The clearing of it between the artery and the large root of the brachial plexus was attended with some difficulty; and when the artery lay in the bend of the needle it could still be felt pulsating.

A small artery was divided early in the operation, but Dr. MacCormac twisted it before it had time to obscure the wound. The sparing use of the knife saved the veins, of which there was an abundance, so that not half an ounce of blood was lost from first to last.

On tightening the ligature, pulsation was at once arrested in the tumour. The wound was washed out with a weak solution of



carbolic acid. The flap retained in position by two points of suture, and covered with dry lint and adhesive plaster.

Emesis occurred during the patient's recovery from chloroform. He was, however, placed in bed with a steadier, fuller pulse than when he was expecting the operation. The limb was enveloped in moderately warm flannel. He was completely free from shock, so that neither sedative, nor stimulant, was administered. Ordered to have nothing but a drink if he wished for it till seen again. Three hours after the operation, his only complaint was that the other patients had got their dinner and he had got none.

His cough returned in the evening, and annoyed him that night and the next day. Ordered a mixture containing acid hydrocyan. sol. morphiæ, and ether chlor. On the third day the cough had disappeared.

Dec. 20th.—The fourteenth day after the operation he had an attack of epistaxis which lasted for some hours, but subsided under the use of acid sulph. aromat. and infusion of matico.

Dec. 21st.—Fifteenth day. The ligature came away with the dressings.

Dec. 31st.—Since the fourth day after the operation the pulse has been pretty constantly 104, except for part of the sixth day, when there was a little discharge from the wound, and for a few hours it was 120, but again returned to the 104, being at least 20 beats below its average before the operation. The tumour is now smaller than any hen egg, hard and pulseless. The arm is reduced to its normal size. There is a slight return of sensation in the forearm; when it is touched he feels a tingling in the fingers. As yet the muscles have not regained any power. However, bearing in mind how long paralysis occasioned by pressure on the axillary nerves in some dislocations of the shoulder lasts, I think there is every reason to hope that the improvement which has commenced will continue.

In these days, when so many ingenious devices are in the hands of the profession for the cure of aneurism by compression, it seems almost to require an apology for having ventured to resort to deligation; but in this case pressure would have been attended with great difficulties. If it had been attempted below the clavicle, it should have been sufficiently heavy to compress the artery through the upper portion of the great pectoral muscle; if above, it should have been sunk down forcibly behind the bone, so as to control the artery. In either case it was to me quite inconceivable that the

patient could have borne it without a prolonged state of partial anesthesia from chloroform or strong anodynes, either by the mouth or injected through the skin. Where such measures have to be resorted to, I feel convinced that if the operation of deligation is quietly, and cautiously, performed, avoiding the more superficial vessels so as to reduce hemorrhage to a minimum, and leaving as small a wound as is practicable, the patient suffers less pain, and is in less danger of constitutional disturbance, than he would be from compression with such adjuncts.

Some time ago, in a case apparently much more suitable for pressure than Grant's, I had, at the patient's request, to resort to ligature.

Thos. Andrews, aged twenty-seven, weaver, admitted to the County Down Infirmary 1st August, 1863, with popliteal aneurism, pressure on the femoral artery was tried both with the clamp and with the elastic instrument devised by Mr. Carte; but the patient being of an irritable temperament, would not suffer the compression to be sustained long enough to procure any appreciable change in the tumour. After several days of futile attempts to induce the patient to submit I determined to lose no more time, as the aneurism was large and becoming more and more superficial, the patient himself requesting me to do anything rather than persist in the pressure. So, on August 10th, I tied the femoral in the lower part of Scarpa's angle, there being nothing remarkable in the operation, except that I never saw the femoral vein. The ligature separated on the 21st day. The tumour was long in absorbing, and the stiffness of the knee remained till absorption was nearly complete. He left the infirmary quite well on the 21st October, 1863. I have frequently heard of him since as continuing well and able to work. He has, however, I understand, given up weaving.

That a sudden obstacle to the circulation in any artery may occasion mischief higher up, either in itself or the larger vessel from which it is derived, may be equally the case whether ligature or compression form the obstacle. That the latter may do so appears at least probable from the following case:—

Arthur Carr, aged fifteen, admitted to the County Down Infirmary 24th October, 1866, with popliteal aneurism. The lad, who was very intelligent, gave every assistance in his power, and pressure, with Signorini's instrument, under the constant superintendence of Dr. Edwin Nelson, was attended with the best results as to

the aneurism, which became solid, and pulsation in it was perfectly arrested; but just as we thought we had a most successful case the boy complained of pain in the abdomen and loins. In a very few days we were able to diagnose aneurism near the bifurcation of the aorta. That it arose after the pressure was commenced our frequent and careful examination of all the leading arteries left no doubt on our minds; nor, indeed, can it be looked on as an improbable result of such a complete check to the current of blood in a large artery. I only instance the case as showing that, in this particular, compression has no advantage over ligature.

In these remarks I do not wish to be understood as always preferring ligature. On the contrary, where applicable, I think compression ought always get a fair trial. But recently the medical periodicals have teemed with devices simple and complicated, whose chief aim seems to be to put purse silk out of use in surgery, which I think bad treatment for so trustworthy and reliable a servant.

To return to the case of Grant. The rapid progress of the cardiac affection renders it, I fear, improbable that he will live long, though his condition is in no way aggravated by the operation. The case is, however, an instructive one, both as to the distal occlusion of the artery failing to cure the aneurism, and that so large an artery at no great distance from the centre of circulation can be ligatured even with patent aortic valves, and no bad results ensue; it also adds one to the many cases where chloroform has acted well and safely in patients suffering from heart disease.

Edward Rogan, aged nineteen, a strong, healthy young man, admitted to the County Down Infirmary for the consequences of a burn received when he was three years old.

The cicatrix involves the lower part of the face, the front of the neck, and the upper part of the chest. The portion of the neck included between lines drawn from the angle of the jaw to the centre of the clavicle on each side, is in ridges and furrows occasioned by strong bands which have pulled the lower maxilla towards the sternum so forcibly that the mouth cannot be shut, and the position of the bone is so changed that the lower incisor teeth project almost directly forwards.

The lower lip is everted, so that the surface, usually in contact with the teeth and gums, presents in front; what had been the middle part of the free edge is on a level with the chin, and



adherent to it; the gums and teeth are bare, and the saliva dribbles over the everted lip.

The strain on the skin of the middle region of the face is such that it is with difficulty he can shut his eyes; the outer canthus of the lids is drawn downwards, and the aperture is oblique instead of transverse; there is a semicircle of cicatrix occupying the space below the internal halves of both clavicles and the upper sternal region.

The general health and constitution of the patient are good. He is very anxious that an attempt should be made to remedy his deformity. On careful consideration of the case I came to the conclusion that there was reasonable hope of improvement from operative interference, chiefly from the circumstance that the contraction did not depend on the superficial layer of cicatrix which replaced the skin, but was entirely due to the deeper bands. In cases where the surface cicatrix is itself the cause of contraction, or is so intimately incorporated with the deeper contractile bands as to be with difficulty separated from them, a good result after operation would be much less likely than in a case like the present one, in which the surface layer of cicatrix is soft, pliable, and, to a limited extent, movable on the deeper structures.

Where the contraction depends altogether or in part on the superficies of a cicatrix, if it is removed, Nature is compelled to replace it in some way, and does so almost invariably with one equally disposed to contract; if it is left it is not likely to change its nature after operation, and continues to contract.

Whereas, when the contraction is due to the deeper cicatricial bands, if they are removed, nature is under no such necessity to replace them, as she is to provide a covering for vascular and sensitive structures.

Another circumstance which encouraged me to operate was, that though the middle of the lip was adherent to the chin, yet for about a quarter of its extent, at each commissure, there was original lip edge still capable of being restored to a normal position, so that by following as closely as the case would permit, the operation recommended by Mr. Teale, a new lip might be made which would enable the patient to close his mouth, and prevent dribbling.

On 22nd May, 1867, the patient was placed on a table with his shoulders elevated, and his head thrown back. Chloroform was administered, the action of which he for some time resisted. When anesthesia was produced the operation was commenced by a semi-

circular incision bordering the cicatrix on the chest; a second incision passed from the chin to the centre of the first, and the angular flaps were carefully reflected without injury to the surface. The cicatricial bands were now exposed; they were taken singly and dissected out as the result proved almost completely, some of them sunk to a considerable depth, particularly at the inner edge of the sterno-mastoid muscles, where time and caution were required in order to remove them without injury to the important structures in the immediate vicinity. Having accomplished this part of the operation without injuring any vessel of sufficient size to require ligature, the lip had next to be dealt with. The indications here were to get increased depth of lip, and, if possible, old lip edge to form the margin of the new. This was managed by separating the whole soft parts from the chin, then, supposing the lip divided into quarters, a vertical incision of a little over an inch long was made at each side between the external and the median quarters. From the lower end of this incision the knife was carried outwards and upwards through the whole thickness of the lip and cheek for about two and a half inches. The upper edge of the middle half of the lip was pared so as to leave a clean incised surface. The two external quarters were drawn inwards so as to ride on the corresponding median quarters, and firmly sutured to each other, and the parts beneath all bleeding vessels being secured by the sutures.

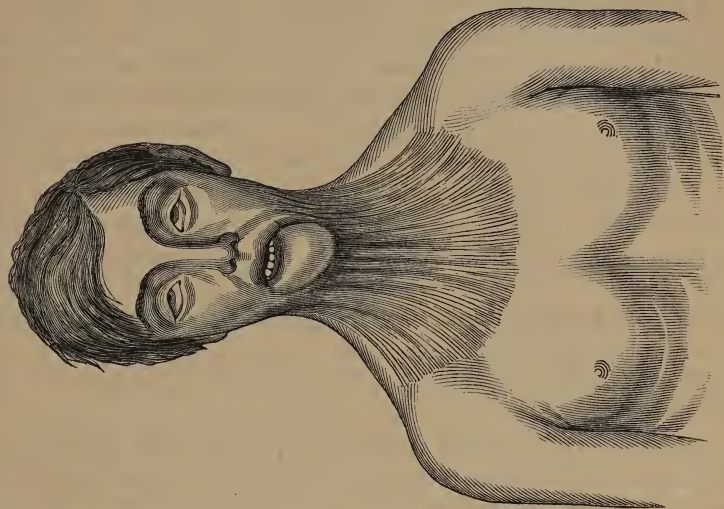
The head being still kept in the extended position the flaps were replaced, and covered the exposed surface exactly to the clavicles. They were retained in position by two points of suture; oiled lint was laid over the whole wound, and the patient placed in bed with his shoulders elevated and his head low.

The subsequent course of the case admits of being concisely sketched. After the operation there was considerable shock, requiring both stimulants and anodynes, and for some days reactionary fever had to be combated; yet the progress of the wound was favourable; the flaps speedily united to the parts underneath, the exposed surface on the chest became covered with granulations, and the component parts of the new lip united by adhesion.

The surface of the chest was slow in healing, but always had a healthy aspect, and during the whole time the extended position of the head was rigidly maintained.

Notes at short intervals of the case would be quite useless and

uninteresting, so I pass over an interval of three months to August 27th, when he left the infirmary, his state then being that he could move his head in any direction, could perfectly and easily close his



mouth, and in consequence the saliva no longer dribbled, the axis of the aperture of the eyelids is transverse, and he has a chin. In speaking of the removal of the cicatrical bands, I said they were



almost completely removed, because from an early stage after the operation there appeared to be the partial remains of one between the middle line and the edge of the left sterno-mastoid muscle; and now (Aug. 27th) there is still the remains of it there, though it is only observable in forced extension of the neck. It was, no doubt, a fault in the operation, but one not easy to avoid, as with a good deal of surface bleeding, if a band of the kind happened to get a nick or two and lose its prominence, it is hard to distinguish it from more harmless structures; in fact, the complete removal of the contractile tissue is the great difficulty of such a case.

From the 27th August till 6th January, 1868, he has daily worked at his trade of flax scutcher, and has now come to the infirmary at my request. Since the last note he has gained certainly in having a more accurate opposition of his incisor teeth. His lip is still perfect; it has not contracted in the least.

There is not a vestige of a contractile band, except the one before mentioned.

The whole right side of the neck is perfectly free and soft, and on the left side, external to the one band, it is equally so. This one band is made prominent by extension of the neck, but is so little inconvenience to him that he is far less concerned about it than I am. Notwithstanding this mishap, it will be seen on contrasting the two woodcuts (one taken from a drawing I got of his state before the operation, and the other copied from a photograph at the time of his leaving the infirmary, but which hardly does justice to his present state, as his mouth is now straighter), that he is amply compensated for his loss of time and the inconveniences of the after treatment, and that the success obtained fully warranted the operation.

ART. VII.—*On the Symptomatic Value of "Herpes Zoster."* By WILLIAM MOORE, M.D., Dub.; M.R.I.A., Fellow College Physicians, Physician to Mercer's Hospital; Physician in Ordinary to Sir P. Dun's Hospital, and to the "Institution for Diseases of Children;" Lecturer on Practice of Medicine; Examiner in Practice of Medicine, Coll. Physicians, &c.<sup>a</sup>

ON the night of the 7th November last I was called to see Mr. P——, aged sixty-four, who was suffering from violent pain in the left dorso-lumbar region, which radiated towards the umbilicus.

<sup>a</sup> Read before the Medical Society, College of Physicians.

He was writhing with the pain, still his pulse was little accelerated, and he had passed water freely. I desired hot fomentations to be applied over the seat of the pain, and gave him a full opiate.

Next morning (8th November) he was still complaining of a dull pain in the same region, but there was no discoloration of the part, or pain on pressure, and he had slept some hours. I prescribed aperient medicine, which relieved the bowels, and he passed water in the usual quantity.

At 11 p.m. I called again to see him; he was suffering great agony referable to the same region, the pain having returned with intensity almost exactly at the same hour as it occurred the night before. This periodic feature of it showed me its neuralgic character. Anodynes were applied, and an opiate given.

On the 9th the pain was less severe, and the patient had got some sleep. A line of erythema, not quite continuous, extended from above the umbilicus under the floating ribs on the left side, and in one or two places small vesicles were apparent.

I prescribed bark in effervescence, with bicarbonate of potash, liberal diet, and a full opiate to be taken at bed time, if the pain returned with severity. The pain did return about the same hour on the nights of the 9th and 10th. On the morning of the 11th the eruption had the following appearance:—About the mesian line there was a cluster of vesicles as large as beads, and full of a clear, limpid fluid, the cluster being surrounded by a red margin; another cluster, with vesicles of a smaller size, was situated about the margin of the floating ribs, while the erythema extended and ascended, in a partially broken chain, to the spinal column. On the 12th the patches of vesicles had formed towards the spine.

On the 13th the vesicles over the abdomen were becoming muddy, and of a darkish hue; in two days more some of them were broken, others livid and flattened, and at the end of ten days their outlines were comparatively obliterated, but the skin still remained tender, and in one or two places small cicatrices were apparent. Such was the course of this eruption, about eighteen days having passed from the date of the first neuralgic symptom till the eruption may be said to have disappeared.

The name "*Herpes Zoster*" may seem inappropriate for this eruption, inasmuch as it is non-parasitical, whilst the herpes we are most familiar with, the "*circinatus*," is of parasitic origin; but this is a point I will not stop to discuss. As to the recurrence of this affection it occasionally, though rarely, happens, and as to its seat

my experience leads me to think the right side is more prone to it than the left; but why the fourth and fifth dorsal nerves seem to be usually implicated, I am at a loss to explain, nor can I say what share, if any, the sympathetic nerve takes in the production of this eruption.

Dr. Von Barendsprung<sup>a</sup> tells us that herpetic eruptions follow the course of various nerves; thus the "zoster facialis" corresponds to the cutaneous and mucous twigs of the trigeminal nerve, the labial form being restricted to the labial branch of this nerve. Then we have a herpes corresponding to the peripheric distribution of the third cervical nerve, also to that of the fourth; to the brachial plexus, and so on downwards.

Dr. Von Barendsprung considers the source of this inflammation is not from without, nor in the blood; but that it operates through the nerves, and, in fact, depends upon their abnormal irritation. He considers that the posterior roots of the spinal nerves are those affected, inasmuch as this affection is associated with exalted sensibility; hence it is to the posterior roots and to the spinal ganglia which are connected with these roots, that we must look for an explanation of this phenomenon. Kölliker and others describe the sensitive nerve fibres as passing through spinal ganglia without being intimately connected with them, whilst the ganglionic fibres arising in the ganglion masses do not extend towards the spinal cord, but take a peripheric course along the sensitive fibres. Hence the neuralgia in zoster is caused by a propagation of irritation from the ganglion to the posterior roots, and thus the latter may propagate their irritated condition through the spinal cord to neighbouring and symmetrical nerve regions; whilst the trophic irritation always remains on one side, because the ganglion sends no fibres to the spinal cord, or receives any from it. He quotes one case in which intense pain at the posterior part of the whole leg, and the formation of numerous groups of vesicles with reddish yellow contents, of various sizes, was supposed to be owing to an œdematous and hyperemic state of the ischiatic nerve as found after death, connected with psoas abscess. He also quotes cases showing that a peripheric irritation of a nerve containing ganglion fibres may cause a limited eruption of herpetic vesicles. Dr. Handfield Jones,<sup>b</sup> in connexion with "eczema," believes that the actions of the affected part, of its tissue or its vaso-motor nerves, are

<sup>a</sup> *Annalen der Charite-Krankenhausen zur Berlin*, 1861.

<sup>b</sup> *British Medical Journal*, May, 1862.



deranged in some way, whilst Bernard tells us that paralysis of the vaso-motor nerves is capable of giving rise to inflammation.

Again, Dupuy observed that division of the sympathetic in the horse was followed by a peculiar dryness and adherence of the skin, with augmented perspiration and eruption.

In accordance with these views Dr. P. Gerhardt explains the presence of "herpes zoster" in more acute disease. He says the group of diseases, in the course of which "facial zoster" is frequently observed, is distinguished by initial rigors, or increased temperature; and that the eruption is caused by the fact, that the branches of the fifth nerve run through narrow, long canals, along with small arteries; these latter contract during the rigor, then dilate, and their abnormal size gives rise to pressure on the branches of the trigeminus and sympathetic; hence the "facial zoster."

Assuming, then, with von Barensprung that direct irritation of nerves is capable of producing severe inflammation in the parts to which they are distributed, which may even take the form of vesicles, I will give a brief outline of two cases.

Michael L—— was admitted into Mercer's Hospital, complaining of distress of breathing, difficulty in swallowing, severe pain radiating over the shoulders, and down the back. He had a hard, ringing, laryngeal cough, with aphonia. Both pupils were contracted, especially the right; there was dulness on percussion, and a second centre of pulsation over the top of the sternum; the respiration in the left lung was feeble; the left radial pulse could scarcely be felt; the veins over the top of the sternum were *too* prominent, and the patient had hemoptysis. In addition to these unequivocal symptoms of aneurism, or intra-thoracic tumour, he had latterly been harassed *with boils and herpetic eruptions* over the upper part of the chest, and between the scapulæ.

CASE II.—Patrick ——, aged forty-four, was a patient in Mercer's Hospital. He suffered from neuralgic pains over the top of the chest and sternum; from a troublesome ringing cough; from dysphagia; from tightness of the skin of the left side of the face; from occasional intense heat of the left ear. There was slight drooping of the left angle of the mouth, and the left pupil was more contracted than the right. The superficial veins over the upper part of the chest were remarkable, and a tumour extended from the right clavicular articulation across the sternum. An *herpetic eruption* was present over the chin, neck, and chest.

Here were two cases of thoracic aneurism, in which we had unequivocal evidence of nervous pressure, and in which *herpetic eruptions* were present.

You may say the presence of this cutaneous eruption in these cases is a very trivial matter, and of little, if of any, practical value. I answer, fifteen or twenty years ago so would have been regarded contraction of the pupil, increased temperature with increased sensibility of half the face, or slight alteration in the muscles of expression, or increased flow of tears or modification of the voice, and yet what an advance these symptoms have given us in the diagnosis of a malady, till lately the most latent in the whole category of disease—namely, thoracic aneurism.

In cases where no positive local physical signs exist, the presence of any such symptoms as I have enumerated, coupled with dysphagia, dyspnea, inequality of respiration, hemoptysis, or any one or more of such phenomena, would point to pressure (especially nervous) within the thorax from tumour of some kind. Hence if such important strides have been made by these collateral nervous symptoms, and now if, in addition, we find that nervous pressure is capable of producing “herpes,” we have another link in the diagnostic chain which we cannot afford to overlook.

ART. VIII.—*Fracture of the Thigh.* By LAWSON TAIT, Member of the Surgical Society of Ireland, &c.; Resident Surgeon, Clayton Hospital, Wakefield.

THE treatment of fracture of the femur in all its varieties has run with so many variations from one extreme to the other—from no treatment at all, to treatment most dangerously meddlesome, that it would serve no good purpose, were it even possible, to narrate a tithe of the wondrous mechanisms by which such an accident was intended to be remedied. Suffice it to say, that the two methods now generally in use are Desault's long splint, and the principle of the inclined plane, used either in the original plan of Sir Charles Bell, or by means of Liston's or M'Intyre's splints. The treatment by position brought forward by Pott is now, as far as I am aware, not in use; although it had, in suitable cases, several good points to recommend it. The double inclined plane seems also to have lost its hold on public estimation very much; except, perhaps, in cases of fracture immediately above the condyles. It is liable to the objections of causing œdema of the leg and foot,

that the position in which the limb is maintained is extremely irksome, and that it permits of but very slight change in position of the patient. In the use of the iron splints I have heard the patients complain bitterly of the cold. In children and old people it is scarcely possible to use this method.

Desault's long splint, although as perfect as such a simple apparatus could be, is far from being free from objections to its use. In the first place, children and old people are extremely intolerant of its use. It necessitates that the patient shall be continually on his back. When the fracture is near the middle of the thigh the proper arch of the femur is not retained; but, as Amesbury says, "Instead of forming a segment of a large circle it becomes two segments of two smaller circles," from the want of posterior support. There is very great difficulty in regulating the amount of extension by means of the perineal band. The theory is that there should exist no constant pressure on the perineum, but that the band should act as a check ligament. Practically, however, this is not the case, because to prevent shortening there must be constant action of the perineal band until union is fairly begun; and as few patients can stand pressure long it is not difficult to account for the fact that some surgeons declare that fracture of the thigh never gets well without some amount of shortening of the limb.

Under such circumstances it may be of some interest to bring briefly under notice the particulars of some cases in which I used a new plan of treatment of this fracture with most gratifying results.

The method referred to is that usually known as Buck's, and is described in Hamilton's elaborate treatise. Two years ago I had the good fortune to make the acquaintance of Dr. George K. Smith, of Brooklyn, U.S., who had been attached to one of the rear hospitals of the Federal army during the late war. Dr. Smith is the author of a most exhaustive paper on fractures of the neck of the femur, and on this account was allowed to select, as an especial study, cases of gunshot fracture of the thigh. His treatment consisted entirely in the use of Buck's method, and the success obtained by it has been extremely satisfactory. In the elaborate reports and catalogues issued by the Army Medical Department his cases are noticed; but I had the opportunity of examining photographs of many of his patients, and must express my opinion that the success obtained during that unfortunate war in the treatment of gunshot fractures of the thigh was such as immeasurably exceeded that of any other known campaign.

The principle on which the plan is based—that of continuous



extension by a weight and pulley—is not new, but the credit of adapting it successfully to the treatment of fractures of the thigh is certainly due to the American surgeons. The following will be found a convenient method of applying Buck's treatment:—Having placed the patient on a convenient bed, fasten two strips of ordinary diachylon plaster (that spread on unglazed calico is the best) reaching from about three inches above the knee to the malleolus, and from two to three inches wide, one on either side of the injured limb, and leave as much as will tie round a piece of wood adapted to the sole of the foot. This foot-piece must have a hole bored in it about three inches from the heel, through which a cord is run from above downwards and secured by a knot; it must also have a flat notch on either side in which the plaster straps are laid. The cord ought to be in front of the straps. The limb is now to be carefully bandaged from the toes to the upper ends of the plaster straps, and the bandage to be saturated with dextrin or paraffin. The foot of the bed is to be raised about four inches to obtain counter-extension by the weight of the body. The cord is to be reeved over a pulley, and have a weight attached to it. The fragments having been adjusted, four gouch splints are to be applied of suitable length on the four surfaces of the limb, and those are best retained in position by small straps buckled. A slight addition, which I have found of great importance in preserving the heel from injury, consists in having a small cradle placed over the foot, to which the foot is slung by a small cord running through a hole in the toe of the foot-piece; this also prevents the tendency to eversion which the natural form and axis of the limb create. The more robust the patient the greater the extending weight required, and more weight is necessary during the first week than afterwards. In children I have had good results with so slight a weight as four pounds; and in the case of a full-grown man I have had to use sixteen pounds. I have treated fractures of the thigh in all the various sites of fractures, and the result has been uniformly satisfactory. Of course, in cases of fracture close to or above the trochanter the splints on the thigh are unnecessary—the extension alone must be trusted to. It is not necessary that the splints should command the knee-joint. Indeed, except in cases when the fracture is very close to the condyles, I think it better that they should not do so. There is no object to be gained in restricting all motion of the hip-joint; indeed, all the cases have been allowed, if they wished it, to sit up in bed after the first week.

The true indication for treatment in all fractures is to reduce

the patient, as far as his injured part is concerned, to the condition of a crustacean, to supply him with a temporary dermoid skeleton until his vertebrate is repaired. The best illustration of the successful fulfilment of this indication is to be seen in the treatment of Colles' fracture by means of Professor Gordon's splint; and when we have equally efficacious means of treating every injury to the osseous system this department of surgery will be perfect.

The cases in which I have used this treatment are eleven in number—two compound and nine simple:—

COMPOUND			
Fracture	Sex	Age	Duration of treatment and result
Middle, - - - -	M	17	Closed wound with collodion; healed by first intention; up in seventh week; no shortening.
Middle, comminuted; removed a large loose fragment,	M	7	Closed wound with collodion; healed by first intention; up in ninth week; nearly a quarter of an inch shortening.
SIMPLE			
Upper third, - - - -	F	7	Up in fifth week; no shortening.
Middle, - - - -	M	8	Up in sixth week; injured limb distinctly longer than the other. He tumbled and repeated the fracture, and was again put up for five weeks; injured limb still longer than the other.
Two inches above the condyles, - - - -	M	70	Up in ninth week; no shortening.
Upper third, - - - -	M	33	Up in seventh week; no shortening.
Neck, - - - -	M	59	Up in tenth week; barely half an inch shortening.
Comminuted fracture of trochanters from direct violence, - - - -	M	61	Up in sixth week; no shortening.
Middle, - - - -	M	13	Firm union third week under treatment.
Three inches above the condyles, - - - -	M	27	Under treatment.
Lower third, - - - -	F	24	Up in seventh week; no shortening.

Besides the actually better results obtained from this method of treatment the patients are much more comfortable during its continuance than under any other that I have seen. In cases where bedsores threaten they can be more easily obviated in this method than in any other.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Fecundity, Fertility, Sterility, and Allied Topics.* By J. MATTHEWS DUNCAN, A.M., M.D., &c. Edinburgh: Black, 1866. 8vo, pp. 378.

IN the volume before us Dr Matthews Duncan has examined, by the light of carefully and judiciously selected statistics, a great variety of interesting questions connected with the important function of reproduction. There are upwards of fifty different essays in the work, and as each of these is based on a series of statistical calculations, more or less extended, some idea may be formed of the amount of labour and research which this volume must have cost its author; but the best proof of this is to be found in the numerical tables, illustrating nearly every chapter, and of which there are no less than one hundred and thirteen, scattered throughout the different chapters. The sources whence he obtained the data necessary for compiling these tables have been various; but we should say that the Rotunda Lying-in Hospital, and the Returns of the Registrar-General for England and Scotland have supplied by far the greater portion of them. The former of these sources—by which we mean the clinical reports of Dr. Collins, of Drs. M'Clintock and Hardy, and of Drs. Johnston and Sinclair—has been a rich mine of information, which he has worked with great care and success.

We freely avow our conviction that it is hard to use statistics aright, so as to get from them “the truth, the whole truth, and nothing but the truth.” To do this requires a clear, strong, and severely logical mind; but we unhesitatingly confess that the author of this work has given ample evidence of his possessing the above qualification in a very high degree. We doubt if any professed actuary could show greater discrimination and skill in dealing with the data here presented to us. Although this work is not what is called a “practical” one, still the information it brings out has a direct bearing on many practical questions of deep interest to the



obstetrician as well as to the political economist. We cannot go regularly through this volume in our analysis of its contents, nor indeed would this be necessary, as many of its essays have already been published; but we shall dip into it here and there, so as to show our readers the nature and results of some of Dr. Duncan's statistical investigations. The work is divided into ten "parts" or sections, each of which comprises several chapters. The enumeration of the titles or headings of each of the parts will give a very good general idea of the subject matter of the book:—Part I. On the Variations of Fecundity and Fertility of Women according to age. Part II. On the Weight and Length of the newly-born Child. Part III. On some Laws of the production of Twins. Part IV. On the Laws of the Fertility of Women. Part V. On some Laws of the Sterility of Women. Part VI. Note on Formulæ, representing the Fecundity and Fertility of Women (by Professor Tait). Part VII. On the Mortality of Childbed, as affected by the number of the Labour and the Age of the Mother. Part VIII. On the Age of Nubility. Part IX. The Doctrine of the duration of Labour. Part X. On the duration of Pregnancy.

In the course of the introductory observations to Part I., the author lays down a distinction between *fecundity* and *fertility*:—

"By fertility or productiveness I mean the amount of births as distinguished from the capability to bear. This quality of fertility or productiveness is interesting chiefly to the statistician or the political economist. When a population is the subject of consideration it does not even involve the capability of every individual considered to bear, nor even the conditions necessary for conception. By fecundity I mean the demonstrated capability to bear children: it implies the conditions necessary for conception in the women of whom its variations are predicated. This quality of fecundity is interesting chiefly to the physiologist and physician. In short, fertility implies fecundity, and also introduces the idea of number of progeny, while fecundity simply indicates the quality, without any superadded notion of quantity" (p. 3).

If we have taken in the correct meaning of the author in this passage, we might say that fecundity has somewhat of a prospective reference, whilst fertility is retrospective—the one implies what the woman may do in the way of procreation, and the other what she has done. But in our estimation fertility is the only proof we can have of fecundity; hence we cannot see the use or advantage of laying down the above distinction in a statistical inquiry, nor how

it can be strictly adhered to. We may be rather obtuse on this point; but if so it is some consolation to find we are not singular, since Dr. Granville—one of the latest writers on this subject—has confounded the two. The age of a woman is always a delicate point, and hard to be ascertained correctly. Dr. Duncan seems fully aware of this, and frankly admits that it is “an unfortunate element of error, which creeps into the most carefully-prepared vital statistics.” For our own part we never found a woman in her first pregnancy to admit she was over twenty-eight or twenty-nine! It is a current opinion that first children are, on the average, larger than subsequent births, and thence one cause for greater difficulty of first labours. But Dr. Duncan’s tables do not confirm this opinion, but tend rather to show that the size of the fetus is more influenced by the age of the mother, and, in fact, follows the law of fecundity, being greatest when fecundity is greatest, viz., between twenty-five and thirty years, after which the fecundity of the mother and weight of the child undergo a gradual diminution. It is worth noticing with the author, that this result goes a certain way to account for the increased difficulty and danger so often experienced in first labours where the patient is no longer young; and the operation of the same law will also help to explain why it is that an old primiparous woman passes through labour more easily than one who is somewhat younger.

The statistics with regard to twin births bring out a very curious and unexpected result, namely, “that from the earliest childbearing period, till the age of forty is reached—that is, till a period when fecundity has become extraordinarily diminished—the fertility of mothers in twins gradually increases.” Thus, of mothers from fifteen to nineteen years of age, only every 189th had twins, whilst those whose ages ranged from thirty-five to thirty-nine years (when the climax in fertility of twins was reached), every 45th woman produced two at a birth, or fully four times as many as the mothers under twenty. To this general statement there is one exception, in the case of first pregnancies, when there seems to be a somewhat greater chance of twins than in either second or third labours. As the age of mothers necessarily increases as the number of the pregnancy increases, it might be urged that the latter, and not the age of the woman, causes the increased frequency of twin births with advancing years. But this objection is satisfactorily met by Dr. Duncan’s thirty-second table, from which it is evident that, speaking generally, twinning becomes rarer as the number of the pregnancy

increases. The author's tables and conclusions with regard to twin births do not contradict, but, on the contrary, rather support, the popular notion that twinners are, as a general rule, more fertile than uniparous women, so that the proportionate frequency of twin births may be taken as an index of the fertility of a population. If this be so it makes the fertility of Irish women appear to great advantage, as compared, at all events, with Scotch women. In the Rotunda Lying-in Hospital 16,385 women produced 480 twin children. In Edinburgh and Glasgow, in 1855, 16,301 wives produced 396 twin children; whereas they should, to equal the Irish women, have produced 477 twin children. Passing over many chapters which we have not space to notice, we come to that on "Expectation of Sterility," being the fifth chapter of Part V. His statistical tables in relation to this subject seem to warrant two general propositions, which are thus stated:—"That the question of a woman's being probably sterile is decided in three years of married life. For while a large number are fertile for a first time in each of the first three years of married life, only 7 per cent. of the fertile bear first children after three years of marriage, or about 1 in 13."

"That when the expectation of fertility is greatest, the question of probable sterility is soonest decided, and vice versa. For our tables show that of the wives married from twenty to twenty-four, who are all fertile, only 6.2 per cent. begin to breed after three years of marriage, while at the other ages, with less fecundity, a greater per centage commences after the completion of the third year of marriage."

The subject of sterility engages much attention at the present day, and many modes of cure (chiefly, however, of a more or less mechanical kind) are resorted to by the gynecologists of a particular school. Our author improves the occasion to advert to these, and does so in a way that leaves us in little doubt as to his estimation respecting them. "Besides being of evident intrinsic value, the conclusions here arrived at will afford to medical men means of estimating the utility of the many vaunted methods of curing sterility, which are now much in vogue, and which, considering the nature of the condition to be cured, justly excite anxiety for the honour of the profession in the minds of its best friends."

In Part VIII. the author enters upon a minute and impartial examination, by the aid of statistics, of two questions deeply interesting to obstetricians and to actuaries, especially at the present moment, when the causes of puerperal mortality are under such



close investigation. These questions relate to the influence exerted by the *number of the pregnancy*, and by the *age of the woman*, upon the mortality accompanying parturition. He candidly tells us he knows of no data sufficiently satisfactory to decide the questions raised, but so far as they go he uses the data available for the purpose, which are derived altogether from the clinical reports of the Dublin Lying-in Hospital, and of the registration returns of Edinburgh and Glasgow for the year 1855. Here, as elsewhere, it will suffice for us to reproduce the author's general conclusions, omitting the tables on which they are based:—

“1. The mortality of first labours is about twice the mortality of all subsequent labours taken together.

“2. The mortality from puerperal fever following first labours is about twice the mortality from puerperal fever following all subsequent labours taken together.

“3. As the number of a woman's labour increases above nine, the risk of death following labour increases with the number.

“4. As the number of a woman's labour increases above nine, the risk of death from puerperal fever following labour increases with the number.

“5. If a woman have a large family, she escapes extraordinary risk in surviving her first labour, to come again into extraordinary and increasing risk as she bears her ninth and subsequent children.”

We have long been aware that primiparity had a considerable influence upon the mortality of childbed; but, in truth, till we read this chapter we had no conception of the magnitude of this influence. The above conclusions—or general laws as we may term them—cannot fail to suggest many reflections in the mind of every thoughtful physician. Dr. Duncan seems to think that the facts recorded about puerperal fever, viz., its occurrence specially among primiparæ and women who have borne large families—its pretty close correspondence in relative amount to the general mortality of parturition after different pregnancies—its subjection also to the law of the duration of labour—does not appear to him to lend support to the views hitherto generally entertained regarding it, and expressed in the words accidental, fever, contagions, epidemic. Another important reflection arises out of these laws, which is best given in the author's own words:—“Authors comparing the mortalities of lying-in institutions, whether from puerperal fever or from other causes, are frequently found neglecting to begin by ascertaining whether or not they are fit objects of comparison, and

under this head, *inter alia*, neglecting to ascertain the comparative amount of primiparity in each institution. It is plain that unless there be nearly the same comparative amount of primiparity in the institutions, their respective gross mortalities cannot be justly contrasted with one another."

These observations we consider to be of the utmost importance. We have before us at the present moment the report of a provincial lying-in hospital—very well managed, and apparently most successful in regard to the recoveries of the patients confined there; but there is one omission in the statistics—the number of primiparæ is not stated! This is a serious and vital defect, greatly lessening the value of the report itself, and leaving us in doubt how far the low rate of mortality is attributable to the hygienic arrangements of the institution. We know of one lying-in hospital in a large English town where, by the rules of the institution, women on their first children were excluded!

The age at which the mortality from parturition is at its minimum is about twenty-five years; and this deduction is arrived at after making due allowance for the influence of primiparity in swelling the mortality. In connexion with this law it is highly interesting to note that the same period of female life is that at which fecundity is greatest; and that during the whole of child-bearing life safety in parturition appears to be directly as fecundity, and *vice versa*. To have educed this wise and beautiful law—so entirely in keeping with the wisdom and goodness of the Creator as displayed in all His works—is surely a rich reward for the author's laborious researches on this subject, and justly entitles him to our warmest thanks.

What is the best age for a woman to enter wedlock? This is a question often discussed, and possessing deep universal interest. It will doubtless be admitted that the main objects of marriage, looking to the woman's side, are the bearing of children, the rearing of children, and the being a "help meet" for her husband. In view of these objects, then, let us see what information Matthews Duncan supplies to us.

In his chapter on "The Age of Nubility" we have a very full and satisfactory solution of the problem before us, in its threefold aspect. First, as to the bearing of children, he has demonstrated, in a previous part of the work, that the age at marriage found to be most secure of fecundity is the quinquenniad, twenty to twenty-four years inclusive. Next, as to the rearing of children, he adduces

data to show that there is a greater survival of children born of women married at twenty to twenty-five years of age than at any other.

Lastly, it is shown in other parts of his work that parturition at the period specified—twenty to twenty-four years of the woman's age—is attended with less danger to her health than at any other time. For all these reasons, then, we must consider twenty to twenty-five as the nubile age of women, in these countries at all events, whence the statistics are derived on which the conclusions rest.

We all remember the long and warm controversy that took place some years ago between Sir J. Y. Simpson and Dr. Collins, as to the effects resulting from mere protraction of parturition. Every man of much obstetric experience felt that in the main Collins had truth on his side; but there were few who detected where the fallacy lay under the formidable array of statistics which his skilful opponent brought to bear against him. It would be hard to say whether, in this great controversy, the application of statistics tended more to elucidate or confuse. "It is evident," says Dr. Duncan, "that accurate statistics can never yield false results, but false results are easily made to appear as if yielded by them. In other words, if a disputant resorts to statistics without the most careful use of logic, he easily flatters himself that they really supply the results he wishes from them." A memorable instance of this illogical use of statistics is supplied in the history of the subject before us. This great question, "The Doctrine of the duration of Labour," as it is termed, is one of immense extent and practical importance; and we feel bound to confess that in its investigation Dr. Duncan has displayed the most critical acumen, the soundest logic, and the most cautious induction. He has, with a master-hand, demonstrated incontrovertibly the great fact which Collins so zealously defended, that mere protraction of labour, *per se*, has but little influence on maternal mortality—that it is only an inconsiderable item among the many causes (single or combined) of the mortality of women in parturition and childbed. Our author fully concedes to Simpson—as all must do—the merit of formally enunciating the general proposition that the mortality increases with the length of labour. The pernicious tendencies of the doctrine, as laid down and applied by Simpson, are thus ably summed up:—

"Let us consider for a moment what such reasoning as Sir J. Y.



Simpson adopts in this controversy would lead to. It appears to us that, if he had looked whither his arguments might lead, he would have himself been probably deterred from urging them. If mere length of labour be an important element in the causation of deaths from labour, then certainly patience is no virtue in an accoucheur. If mere length of labour be as he describes it, then meddlesome midwifery must, I fear, be declared good instead of bad. If mere length of labour be as important as he represents it, then any treatment which will accelerate delivery may be easily defended. If it be right to disregard all the real causes of danger and death in labours, as this author does, in order to make prominent the danger of protraction, with the ulterior view of supporting an artificial interference which accelerates the process, then a like reasoning may be used to support the most absurd and unjustifiable measures, and the art of midwifery will be at the mercy of any specious reasoner, however ill-founded his arguments may be."

The few remaining chapters relate to the duration of pregnancy, and the mode of reckoning the period when labour may be expected. He very clearly points out the importance of distinguishing between *insemination* and *conception*, and adduces strong reasons for believing that in the human female, as well as in the lower animals, there is an interval between these two acts; but what the length of this interval is he does not attempt to define, it being, as mathematicians say, an unknown quantity. He is at issue with the late Professor Montgomery as to the duration of pregnancy, and shows, on Montgomery's own data, that the illustrious Harvey, in laying down 275 days as the normal period of human gestation, was more correct than the Professor in fixing 280 days.

The general conclusions at which Dr. Duncan arrives on the points in question are as follows:—

"1. That the interval between conception and parturition (the real duration of pregnancy) has not been exactly ascertained in any case.

"2. That the average interval between insemination and parturition (commonly called the duration of pregnancy) is 275 days.

"3. That the average interval between the end of menstruation and parturition is 278 days.

"4. That the intervals between insemination and parturition, and between menstruation and parturition, have no standard length, but vary within certain limits.

"5. That while absolute proof of the prolongation of real pregnancy beyond its usual limits is still deficient, yet there is evidence to establish the probability that it may be protracted beyond such limits to the extent of three or four weeks, or even longer."

In concluding this brief review it is hardly necessary for us to express the high opinion we have formed of the work before us. By its publication Dr. Duncan has rendered an important service to medical as well as to statistical science. He has, moreover, set us a good example how to rightly conduct statistical investigations, so as to avoid the shoals and quicksands which beset the explorer in these regions. We are not speaking too strongly when we affirm that this, in truth, is an original and philosophical work, and gives abundant evidence of deep thought, severely logical exactness, and patient industry. On some of the important questions to which his researches refer, the data are scarcely sufficient in quantity to render the accuracy of his conclusions unimpeachable; but the author admits and regrets this, whilst telling us they were the only data available for his purpose.

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*On the Pathology and Treatment of Albuminuria.* By WILLIAM H. DICKINSON, M.D., Cantab; Fellow of the Royal College of Physicians; Assistant Physician to St. George's Hospital, and to the Hospital for Sick Children.

THE valuable contributions to renal pathology, already published by Dr. Dickinson, have made his name favourably known to all who are conversant with the recent literature of this subject, and accordingly a systematic work on an important class of renal diseases from his pen will be received by the profession with considerable interest. The present volume includes the affections which are usually grouped together under the name of Bright's disease, and is undoubtedly a work of great value and importance, containing, notwithstanding the numerous treatises which are in existence on the same subject, much that is original to the author.

After some excellent practical observations on the examination of the kidney after death, the author proceeds to classify renal diseases, accompanied by albuminuria, under three heads:—

1. Tubal Nephritis.
2. Granular Degeneration.
3. Depurative Infiltration.

Tubal nephritis corresponds with the desquamative nephritis of

Dr. George Johnson. It has its seat in the secreting structures of the kidney—the uriniferous tubes—and is essentially a renal catarrh, or morbidly increased cell growth.

Granular degeneration, which corresponds with the small, contracted kidney, originates, according to the author, in the intertubular fibrous tissue, and consists in a morbid increase in this fibrous tissue, followed by a contraction and condensation of the new material. The effect of this contraction is to produce compression of the tubes, narrowing them at some parts, or even completely obstructing them. Fluid accumulates in the distal portions of the tubes, whose continuity is thus interrupted, and in this way cysts are formed. The epithelium, he believes, is quite unchanged, except by the direct effects of pressure. The affection is, accordingly, closely analogous to cirrhosis of the liver. This account of the pathology of granular degeneration differs altogether from that generally taught and accepted. The view entertained by Frerichs, and generally adopted in Germany, is that it is merely a further stage of the pathological change, of which the large smooth kidney is an earlier condition. Dr. Johnson, again, regards a change in the epithelium of the tubes as the starting point of the affection. Dr. Dickinson's opinions on this subject are worthy of careful consideration, and are supported by some admirably executed illustrations. The question will, no doubt, be soon definitely settled by the numerous investigations which are now being carried on with regard to the minute changes in the kidney.

The depurative infiltration is the name employed by the author to express the waxy, lardaceous, or amyloid degeneration, to which the attention of pathologists have been so much directed of late years. Some additional evidence is brought forward to show the frequent connexion of this condition with the existence of long-continued suppuration. The change in nomenclature has been proposed by the author in a paper on this subject in the last volume of the *Medico-Chirurgical Transactions*, and is advocated by him on the ground that the new name points directly to the suppurative process as being the most frequent source of the disease. We cannot congratulate Dr. Dickinson on his addition to the already abundant synonyms of this affection. Nothing but the most incontestable advantages in scientific precision or in convenience can, in our opinion, justify the change of a well-known name. The proposed term does not suggest to an ordinary reader, when read without Dr. Dickinson's explanation, the meaning which he wishes to attach



to it, the word *depurate* being in not infrequent use in a widely different signification. The connexion between the amyloid change and the suppurative process is, besides, by no means so invariable as to establish the one as the only cause of the other—indeed, Dr. Dickinson does not assert this; and, finally, the name is based on a principle which is totally at variance with those on which the nomenclature of the other two forms has been founded. Tubal nephritis is so called from the microscopical structure which is the seat of the inflammatory process; granular degeneration from the rough external characters presented by the altered gland; and the new name is founded on something different from both—namely, a pathological theory as to causation, a theory which cannot be, as yet, regarded as proved. The fatty kidney is not erected into a distinct variety by the author, and, we think, rightly. He regards it with justice as a condition engrafted on a previous affection, and is inclined to connect it with cases the result of cold.

The three forms which we have mentioned are described in succession, each of them being the subject of a separate and detailed description, which embraces the pathology, the clinical history, the etiology, and the treatment. A large number of cases are detailed to illustrate the different points advanced by the author. Our limits will not permit us to do more than touch upon some of the numerous questions which are treated by the author. The acute stage of tubal nephritis, such as follows scarlatina, for instance, is recommended to be dealt with in the following manner:—

“The object to be attained is simply to cause the passage of fluid through the kidney, while at the same time we avoid the use of such drugs as would add to the existing irritation. Of all diuretics water is the most valuable. The patient may be restricted to a fluid but nutritious diet, while pure water is taken freely. In children, when the kidney responds readily to this simple stimulant, the disease will generally recover without further treatment. In grown persons, or in children when the disease is severe, *digitalis* is a most valuable adjunct. Of all drugs this one is of the greatest value in the treatment of nephritis, and was indeed first used in medicine as a diuretic in renal dropsy. If the dropsy be excessive, and the urine correspondingly scanty, it is well to await a certain amount of diuresis by its means, increasing the fluid, which the patient takes in a gradual manner, as the kidney becomes able to deal with it. I believe the best preparation of *digitalis* is the infusion; the doses may vary from one to four drachms, according to the age of the patient, repeated twice or

thrice in the day, or, in a severe case, as often as every three or four hours, until the urine has become increased in quantity. The purest water should be used; patients do not object to distilled water. Two, three, or four pints a day may be taken, according to the age and other circumstances."

He regards the ordinary mode of treatment by purging with compound jalap powder, and acting on the skin by vapour or other baths, as positively injurious, as "whatever good may be done by way of relieving the gland of its work, is more than counter-balanced by the evil which results from the misappropriation of the aqueous fluid which is needed to keep the tubes clear."

We are strongly of opinion that the basis on which this treatment is recommended is unsound. It is in the highest degree unsafe to found modes of treatment on purely theoretical considerations, even admitting their plausibility; but here the theory seems to have little to recommend it. The great diminution in the secretion of urine in the early stages of the disorder leads directly to a great and morbid increase in the amount of water in the system, as is abundantly evidenced by the anasarca which supervenes; and we are at a loss to comprehend how the ingestion of a few extra pints of water can assist in unloading an already overburdened system. We think that both theory and practical observation concur in pointing to the desirability of endeavouring to remove some of this superfluous water, with, if possible, some excretory matters in solution in it.

The method of relieving anasarca by making incisions with a lancet for the purpose of allowing the dropsical fluid to drain off—a method which is frequently employed—is stated by the author to be very likely to lead to troublesome sequelæ. He regards acupuncture as preferable, and quotes a case in which a needle was used to puncture one leg of an anasarcous patient, while a lancet was employed, at the same time, to puncture the other. The openings made by the needle healed without difficulty; those in which the lancet had been used gave rise to severe suppuration.

An important practical question is discussed, bearing on the selection of the particular surgical operation which should be performed in cases in which there is reason to fear that the amyloid degeneration has set in; for instance, where profuse suppuration has lasted for some time. Under such circumstances, the author believes, that excision should not be performed in consequence of

the exhausting suppuration likely to ensue; but that amputation should be resorted to as the safer expedient, and as less liable to this source of danger.

The author has brought together some curious statistics with regard to the effect of climate on the production of Bright's disease. These are deserving of attentive consideration, and we have no doubt that efforts in this direction will ultimately lead to much valuable information. At present we can scarcely attach much importance to the returns of renal disease furnished by the Registrar-General. The statement made by Dr. Roberts that the number of deaths reported as entered under nephria, which in 1852 was 570, had in 1861 risen to 1,448—an increase quite disproportionate to the increase of the population—is alone sufficient to warn us against basing any inference on these figures. We find it, we confess, impossible to regard the return of a mortality from renal disease of 1 in 49 in Aberdeen, and of 1 in 142 in Glasgow, as representing real proportions.

Some facts brought forward with regard to the influence of alcohol as a cause of Bright's disease are remarkable. Dr. Dickinson has examined the records of the autopsies of fifty-two persons who had died from delirium tremens in St. George's Hospital, and he has found that the proportion of kidney affections in these was only slightly greater than that which was found in the *post mortem* examination of the bodies of the same number of persons who had died from other causes, and in whom death had not been, as far as was known, preceded by intemperance.

The chapter on the pathology of the depurative infiltration contains a summary of the author's views on the amyloid degeneration, as we prefer to continue to name it. The conclusion at which he arrives is that the amyloid substance is fibrin deprived of alkali, and that this deprivation is brought about by a drain of alkali from the system by suppuration. These conclusions are advocated at length in the paper published in the *Medico-Chirurgical Transactions*, to which we have already alluded. It is there argued that the serum of pus contains a much larger amount of alkali than is contained in the serum of blood, and that consequently the discharge of considerable quantities of pus must, when long continued, drain the system of alkali. When we examine the evidence brought forward in support of this view, it seems to us, that the author has fallen into the error of regarding all the salts of the alkalies as possessing actively alkaline properties. He gives the



amount of the bases, without reference to their state of combination, as giving rise to a more or less alkaline condition of the fluid in which they occur. In his own analyses he estimates the total amount of potash and soda without informing us of what acids are combined with them; and he quotes from Simon's *Chemistry* an analysis by Nasse of the serum of pus and of that of blood, in which the amount of alkaline salts contained in the former is stated as 15·32 in 1,000 parts, while the amount in the serum of blood is given as 7·1. On turning to this analysis we find that of the 15·32 parts contained in pus no less than 12·60 are constituted by common salt or chloride of sodium—a thoroughly neutral salt, and one devoid of the smallest alkaline reaction; while the only salts possessing the slightest alkalinity—meaning by the term power of neutralizing acid, or of restoring the blue colour to litmus—which are stated to be present, are the carbonate and phosphate of soda, of which the amount in pus is given as 2·54, while that in blood-serum is stated as 2·30, the difference being little more than two-tenths. We need scarcely observe that all the chlorides and sulphates of the alkalis might be removed from the body without producing the slightest change in the alkalinity of the system. But while we cannot accept the statements put forward as sufficient evidence of there being any considerable diminution of the free alkali of the blood, a change which it would require the direct evidence of numerous analyses of that fluid itself to establish, the following facts which the author adduces as to the character of the deposit itself are very remarkable, and if verified by further researches will throw much light on the pathology of this interesting change:—

“1. The morbid (amyloid) deposit loses its characteristic reaction when it has been allowed to absorb potass or soda.

“2. Organs containing this deposit yield, on analysis, a smaller proportion of the alkalis than do the same organs in a state of health.

“3. Ordinary fibrine or albumen can be made to exhibit all the peculiarities of amyloid tissue by depriving them of alkali by artificial means.”

The symptoms and secondary affections of the three forms of Bright's disease are thus discriminated:—

“Tubular nephritis is accompanied more frequently than are the other forms, by pain in the loins, hematuria, dropsical affections, pneumonia, pleurisy, peritonitis, and croup. Uremic nervous affections with a tendency to convulsions are frequent in this variety.

“Granular degeneration is especially associated with gout, with affections of the heart and blood-vessels, and with hemorrhagic affections. Convulsive seizures are of frequent occurrence, but there is a still greater liability to simple coma.

“The amyloid disease is marked by diarrhea, which points to the extension of the degeneration to the mucous membrane of the alimentary canal.”

We have in this notice dwelt chiefly on the debatable points in Dr. Dickinson's work, and in this way may have unintentionally and unwillingly done him injustice. It is impossible not to be impressed by the marks of earnest and careful work which every chapter bears. The descriptions of morbid appearances are most truthful and accurate, and the illustrations are of great fidelity and beauty. We regard the work as a valuable addition to the literature on the subject.

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*The Diseases of the Ear; their Nature, Diagnosis, and Treatment.*

By JOSEPH TOYNBEE, F.R.S., late Fellow of the Royal College of Surgeons of England; Aural Surgeon to, and Lecturer on Aural Surgery at St. Mary's Hospital; Aural Surgeon to the Asylum for Idiots, &c., &c. *With a Supplement* by JAMES HINTON, M.R.C.S.; Aural Surgeon to Guy's Hospital. London: H. K. Lewis, 136, Gower-street. 1868.

THIS is a further issue of the original edition of the late lamented Mr. Toynbee's work, to which is added a supplement by his friend and pupil Mr. Hinton. The original work was published first in 1863, and is probably already known to our readers; we therefore now allude merely to Mr. Hinton's supplement, which is “a brief statement of the advances which have been made since the publication of Mr. Toynbee's work,” and some annotations on the text.

Amongst the aids to diagnosis of the conditions of the meatus and membrana tympani, Mr. Hinton recommends the reflecting mirror brought into general use by v. Troeltsch, and of which an account was given in the February number of this Journal for 1863. Siegler's pneumatic speculum is also recommended. This consists of a speculum, the large orifice of which is closed by a slightly magnifying lens; at one side is an opening, to which is fitted an

elastic tube; when the speculum is in the meatus it is air-tight, and suction can be made through the tube on the membrana tympani; "its design was to aid in determining the presence of bands of adhesion in the tympanic cavity, by indicating spots at which the outward movement of the membrane might be impeded. In this respect it has great value; the membrane may be distinctly seen through it to move sometimes as a whole, at others unevenly and in parts."

Some advances have been made of late in connexion with the tuning-fork, especially by Dr. Lucae, of Berlin; this means may be of use occasionally in "distinguishing affections of the nervous from those of the conducting apparatus;" but as yet we think the results of the tuning-fork are not so satisfactorily established as to be able to build up a system of diagnosis upon them; it is probable that it may yet occupy a foremost place in the art and science of diagnosis.

We can fully endorse Mr. Hinton's caution to avoid instrumental interference, and his advice to use the syringe alone in the removal of foreign bodies from the meatus.

We are all familiar with the troublesome nature of boils; when they occur in the meatus they are most distressing; the author has observed them very frequently during the treatment of chronic inflammatory affections of the tympanum, especially perforation of its membrane, and he considers that they are more likely to occur "when the deeper lesion is advancing towards a cure, so that their presence might almost be regarded as a favourable sign." These boils are very apt to recur, and the author recommends the white or red precipitate ointment as a local application, and deprecates incisions; "the use of the knife does not appear to diminish the tendency to recurrence." Sir William Wilde's snare—undoubtedly the best instrument for the purpose—armed with jack-line, is recommended for the removal of polypi; the author's experience of polypi is, that, as a rule, "they spring from within the tympanum;" in opposition to Mr. Toynbee's practice, he advises the removal of polypi "when disease of the brain is threatened from irritation within, or in the neighbourhood of the tympanum."

Several pages are reprints from the transactions of the Medico-Chirurgical Society of Mr. Toynbee's interesting papers on molluscous or sebaceous tumours; these tumours vary in size from a millet seed to a large hazel nut; they increase equally on all sides, and produce absorption of the surrounding bone to so great an extent



sometimes that the tympanic, cerebral, or cerebellar cavities are opened; they produce also enormous dilatation of the meatus, and terminate sometimes fatally; "their progress would seem to be more impeded by the presence of membrane than by bone;" in one case "the tumour went through the external, and then the internal osseous walls of the mastoid cells, and came into contact with the dura mater; instead of penetrating it, the tumour passed upwards, causing absorption of the posterior, and then of the upper wall of the petrous bone, and eventually entered the tympanic cavity without producing any perforation in the dura mater."

The greatest advance made since the publication of Mr. Toynbee's work in 1860, is the art of inflating the tympanal cavity introduced by Politzer, of Vienna. "Starting from Mr. Toynbee's discovery that the [Eustachian] tube is opened by the palate muscles during the act of swallowing, Politzer selected the moment of swallowing to introduce a blast of air into the upper part of the pharynx. This is to be accomplished by means of an elastic bag, provided with a flexible tube. The tube he introduced into the patient's nostril, and bidding him swallow, forcibly compressed the bag at the same moment. The patient swallows readily if he previously takes a little water into the mouth, and the nose being closed over the tube, the compressed air exerts a strong pressure upon the mouths of the Eustachian tubes at the same moment that their muscles tend to render them patent." "The surgeon may simply blow through a piece of elastic tubing, or may employ an elastic bag, provided with a valve, by means of which a succession of quick currents of air can be kept up while the patient drinks by small mouthfuls." By this simple means air is readily forced into the tubes, and obstructions, when not of great magnitude, are overcome; it yields also in connexion with the otoscope and the character of the sound, what some regard as valuable diagnostic aid. We ourselves entertain no doubt as to the diagnostic, and occasionally the therapeutic value of this procedure.

In reference to obstruction of the Eustachian tube, Mr. Hinton says, "the increased concavity of the membrana tympani, stated by him [Toynbee] to be characteristic of such obstruction, is not always present except in children;" the membrane may appear, he says, in adults almost normal, or may have a partially convex aspect. Toynbee believed that during the opening of the tubes air might "either enter or recede from the tympanic cavity;" he also held that air entered during deglutition while the nostrils are

closed, and passed out again during the same act with the nostrils opened. Mr. Hinton, however, remarks, "the act of swallowing, whether the nostrils be closed or not, does not increase the pressure of air in the tympanum, but diminishes it; and it is therefore the suction of air out of the tympanum, not the forcing of air into it, which is heard through the otoscope during that act;" this view he supports on observations on the *membrana tympani* during the act of swallowing, and on Politzer's manometer experiment. If air is expelled during each act of deglutition, the question naturally arises, when and how does the air find its way into the cavity.

The mode of action of the artificial *membrana tympani* was long a moot question, Mr. Toynbee, whose name is associated with it, believing it to act by simply closing the aperture; it is now, however, placed almost beyond doubt, by Lucae's experiments and observations, that its effect is produced by pressure, primarily on the ossicula, or their remains, and remotely on the labyrinthine fluid; Mr. Toynbee, during the latter years of his life, came to this view. We regret that Mr. Hinton has passed over this very interesting subject almost in silence.

Catarrh of the tympanal cavity, with perforation of the *membrana tympani*, is an exceedingly tedious and troublesome affection, for which the author recommends that the patient should himself force air into the tympanum by Valsalva's experiment, or have it done for him by Politzer's method, so as to thoroughly cleanse the parts, by freely mixing air and the astringent lotion, previously introduced through the meatus. After thoroughly cleansing the parts by syringing and air douche, and then drying the meatus, Mr. Hinton largely employs powdered talc, which he blows into the meatus; the action of this powder is, he says, to keep the mucous membrane dry.

The old operation of puncturing the *membrana tympani* for various morbid conditions has been revived, but according to Mr. Hinton and others, without any beneficial results.

Amongst the advances made of late years in general medicine and surgery, has been the diagnosis of hereditary syphilis, established by Mr. Hutchinson. The disease attacks the ears as well as other organs, and produces sometimes almost complete deafness; its pathology has not as yet been properly ascertained; at Guy's Hospital the disease has furnished more than one-twentieth of the aural patients.

Mr. Hinton has added an index to the work, the want of which in the original issue we ourselves have experienced.

The advances made in aural surgery since the publication of Toynbee's work in 1860, have not been very great or numerous; it is remarkable that while ophthalmic surgery has made such giant strides of late years, aural surgery has advanced so little; this is attributable to the fact of the innermost parts of the eye being now exposed to our view by means of the ophthalmoscope, whereas the innermost parts of the ear and their diseases remain still in comparative darkness and obscurity. Indeed we might say that very little progress has been made, further than what was known in 1853, when Wilde's *Aural Surgery* appeared. It is possible that inflation of the tympanic cavity, catheterization, and the tuning-fork, may yet lead to very important and practical results, and we would, with Mr. Hinton, recommend their employment.

We cannot conclude this notice without expressing our deep sense of the great loss medical science has sustained in the death of Mr. Toynbee; in seeking means to alleviate the sufferings of others, he unfortunately became the victim of his ardent pursuit of knowledge, and lost his life while experimenting on himself. He has, however, left a museum and a reputation behind him which will long keep his memory fresh amongst us. We are glad to find his work continued by one so like himself in zeal, laborious study, and scientific attainments, as Mr. Hinton has proved himself to be.

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*Clinical Illustrations of Various Forms of Cancer, &c.* By OLIVER PEMBERTON, Surgeon to the General Hospital, Birmingham. London: Longman. 1867. Imperial quarto. pp.128. Highly illustrated with woodcuts and lithographs, plain and coloured.

THIS beautiful book comes appropriately at Christmas time to gladden the heart of the reviewers. In the quality of its externals—paper, printing, and exquisite illustrations, there is nothing wanting to satisfy the most luxurious book-fancier; while those who go below the surface will find in it a record most valuable, of the experience of an able surgeon. This is its special character. It neither is, nor aims to be, a scientific monograph on the subject of Cancer. It does



not go into its microscopic pathology, nor into the various theories on its nature and origin, which have emanated within the last twenty years from the French, German, and British schools. With the exception of one solitary reference to L  bert, the names of those who have laboured in this field are not alluded to, and this of set purpose, as the author tells us in his preface. The book is what it is meant to be, simply a record of a very considerable number of cases of malignant disease, which have fallen under the notice of the author during the labours of many years, preceded by a few brief general comments.

Mr. Pemberton's pathological creed on the subject of cancer may be summed up in the one sentence, with which he concludes his opening chapter—"The terms malignant disease and cancer are synonymous, and in all respects co-extensive." Some will agree with this definition—more especially the older school—who pride themselves on being practical men, and who ignore what they call the hair-splitting of pathological students; others will probably hold that the great work of the microscopists of our day has rendered this broad use of the term malignant as co-extensive with cancer scarcely tenable. Following, however, the lead of Mr. Pemberton, we shall not here enter into these moot points. His work is eminently practical, and steers clear of all these questions, which, however useful and captivating, must, in justice to him, be laid on one side while we consider his work.

Mr. Pemberton's style is brief, clear, and intelligible. In a few pointed sentences he brings out the characteristics of each group of tumour, not repeating himself, and omitting nothing of real importance. Having briefly laid down the characters, distinguishing malignant from benign growths, and those of the various varieties of cancer, he passes on to detail cases illustrative of cancer in various localities. First and most prominent is scirrhus of the breast, of which about ten cases are detailed as types of the varieties, from the atrophic scirrhus to cancer of the male breast; of this last Mr. Pemberton was so fortunate as to see four examples. The three of which full particulars are given, were undoubted instances of scirrhus. In the course of twenty-five years we have only met one case—it also was scirrhus cancer.

The results of our author's cases of scirrhus are thus summed up—"Of the causes of scirrhus (*sic.*) cancer of the breast, very little is known with certainty. Of forty-eight cases in which I have investigated the early history, six were referable to the effects of external

violence. Eight were believed to have originated in consequence of breast abscesses, whilst in thirty-four the disease had appeared without any known cause.

“The hereditary transmission of scirrhus cancer of the breast from family to family, and especially in the female line, is a circumstance in the history of the disease that has taken strong hold on general, as well as on professional belief. I find, however, that in seventy cases the previous existence of cancer in the family was unknown; in twenty-two of the remaining forty-eight there were but six cases in which any hereditary influence could be traced.

“It appears to me to occur more frequently amongst the married than the single, for out of fifty cases in which I have investigated this point, forty-five were married women, and only five single.”

His principles for operation are sound, but as they contain nothing at variance with those in ordinary acceptance, we shall not need to quote them at length. In some of his cases he has been fortunate in having an interval of many years between the operation and relapse; but, on the point of relapse, or on the average duration of the disease with or without operation, we have no statistics. The immediate results of operation have been three deaths in thirty cases; one in seven days; a second in three weeks, of inflammation of the pleura; and one at the end of six weeks, of exhaustion. This average of ten per cent. would be considered high here, although probably not higher than one would expect in an English hospital, the constitution of the English, and their propensities in the matter of feeding heavily, being unfavourable for all operations, when compared with the sparer habit and diet of the Irish. We venture to affirm that so great a primary mortality after amputation of the breast, is quite unheard of in Dublin, while Mr. Pemberton's comment on it is, that the operation is very seldom fatal to life. The observations on after-treatment are few, but judicious. He approves of generous diet, and of the persistent exhibition of arsenic as a tonic and preventive; we have used it frequently, but without perceiving any benefit in the majority of cases. In addition to opiates, quinine in large doses is recommended for relieving the severe periodic pains of the latter stages of the disease.

In the chapter on Scirrhus of the Rectum, there is a good description of Amussat's operation for colotomy, with the reasons which should lead to its performance.

Passing over an interesting case of scirrhus of the thyroid gland, we come to encephaloid tumours of the cranium; of this class of

cancers a most interesting example is given, in which the tumour grew slowly from the cicatrix of a wound. Eleven years elapsed before it reached the size of a hen's egg, and three more before the fatal termination. Two large lithographs illustrate the development of the disease, and its rapid growth at the last, while a woodcut shows the condition of the bone after maceration. Of its size just before death put an end to the patient's sufferings, the following extract will give some idea:—

“The tumour grows with extreme rapidity, and now rears itself directly upwards for about seven inches above the level of the skull, overhanging the brow, and exceeding in dimensions the size of head and face together. The tumour had a considerable bony basis in addition to its softer portions, and it pressed upon the brain; the only internal organs affected were the lungs and bronchial glands. Death took place from repeated hemorrhage and sloughing.”

As a point of diagnosis between cancerous and benign growths of a warty origin on the scalp, Mr. Pemberton gives as the result of his experience, that the latter may generally be recognized by the presence of more or less healthy integument, and by the growth of hair upon them. The point is worth noting for further investigation.

In the chapter on Encephaloid of the Upper Jaw, a case is recorded where the disease began and reached a degree of development which called for removal of the bone, the patient being all the time covered with a well-marked syphilitic eruption. That the tumour was cancerous, was proved by examination at the time of its removal, and by examination upon the death of the man, four and a half years after the operation. It is impossible to detail all the interesting cases in this volume; they are all well selected, and their story is well told. We must refer our readers to the book, especially for some remarkable instances of adenoid tumours of the breast, and one of proliferous cyst, with recurrence of the growth. Mr. Pemberton seems to have a singular fortune in meeting with enormous tumours of all kinds.

In the chapter on Encephaloid of the Testis, we find the following observation:—“The inguinal glands are not unfrequently enlarged in scrofulous or tubercular disease, whereas it is very unusual to find them affected in cases of encephaloid of the testicle.” The lumbar glands seldom escape in cancer of the testis, and we doubt if



the inguinal are not, as a rule, affected sooner or later. They certainly become so, the moment the disease extends from the testis and its proper covering, to its outer tunics. We must pass over, without notice, the remaining valuable chapters which treat of cancer in connexion with bone, melanosis and epithelial cancer in various localities.

The last chapter deals with rodent ulcer, a name given by many English surgeons indiscriminately to lupoid and epithelial ulcers, as well as to what we know here as Jacob's ulcer. Mr. Pemberton gives a definition of rodent ulcer, which shows that he at least understands the difference. He limits the term to the fibro-plastic or Jacob's ulcer; not that he uses either of these terms, but that his definition applies to this alone. This is as it should be, for the confusion engendered some few years ago by the indiscriminate application of the term in the London journals was perfectly hopeless. No statistical results of any value can be obtained, so long as people go on grouping in one class diseases of essentially different nature. This is one grand reason for separating the statistics of epithelioma from those of scirrhus and encephaloid cancer. Whether it is to be looked upon as cutaneous cancer or not, its rate of progress, and its curability by operation, are so essentially different from the other two, that all statistics, in which it is confounded with them, are vitiated and fallacious. For this reason, if for no other, we think those writers have done good service who have insisted on dissociating it from cancer. Mr. Pemberton does not enter into this vexed question, nor does he attempt to generalize much from his cases, which, though sufficiently numerous to give him a fair basis of rule for personal guidance, are necessarily quite too few for the purposes of statistics, unless combined with similarly careful records from the hands of other observers. In conclusion, we express a hope that the profession may, at some future time, be favoured with further records of Mr. Pemberton's experience in other branches of surgery. Honest and plain records, such as those in the pages before us, are the material, of all others, most valuable, whether to the hard-working student of pathology, or to the hard-worked practising surgeon. And how much more agreeable are they when they come to him in handsome garb, such as Mr Pemberton has not grudged to his *Clinical Illustrations*.

*Orthopædics: A Systematic Treatise upon the Prevention and Correction of Deformities.* By DAVID PRINCE, M.D. Philadelphia: Lindsay & Blakiston. pp. 240.

*Club-foot: Its Causes, Pathology, and Treatment; being the Essay to which the Jacksonian Prize for 1864, given by the Royal College of Surgeons, was awarded.* By WILLIAM ADAMS, F.R.C.S. With 100 illustrations on wood and stone. 8vo, pp. 422. London: John Churchill & Sons.

THE works, whose titles appear at the beginning of this notice, present features of marked contrast in more respects than one.

The first is a treatise prepared, according to the author's preparatory statement, with special reference to the wants of physicians engaged in general practice. It is divided into two parts; the first treating of deformities generally, from squint down to the cramped feet of Chinese ladies, and the constricted waists of western beauties; in the latter part considerable space is devoted to the consideration of diseases of the spine and club-foot. The mode of arrangement, and the manner in which the subject matter of the book are dealt with, are alike exceedingly faulty, and the quotations and extracts from other authors, though in many instances excellent in themselves, are so numerous as to form a large portion of the book.

In the treatment of diseases of joints, resulting in deformity, the author adopts the practice of gradual and continuous extension as being the one followed by the best results. The necessity of first awaiting the subsidence of all signs of active inflammation in the affected joints, is, of course, insisted upon, and the writer properly recommends that the extending force should be primarily applied in the direction in which the limb has been left by the disease, and that no effort should, in the first instance, be made to alter the angle of flexion:—

“The neglect of this very important distinction has doubtless led to many failures, when success was practicable. It applies to all extremely flexed joints, especially to the hip, to the elbow, and to the shoulder; and it may be succinctly stated as a rule, *to extend the tendinous and ligamentous fastenings first and change the angle afterwards.*

“It will be easily seen, that an extension in the direction of the acquired deviation may be borne, which could not be tolerated if applied directly

to correct the malposition, on account of the extreme pressure of joint surfaces upon each other, which must be produced by the long leverage of the bone attempted to be reduced to position."

In the second part of this book, different forms of the complicated apparatus used for the correction of spinal deformities are depicted, and some simple modifications, devised by the author, described. The section on Talipes is, perhaps, the best part of the book, although it is also very faulty. Dr. Prince seems to have adopted, almost without an exception, the views of Mr. Barwell, of London, as to the nature and causation of the disease, and in illustration, gives paragraph after paragraph from that gentleman's book, entitled, *On Club-foot, without Cutting Tendons*. Dr. Prince describes a simple, and, we have little doubt, an efficient appliance in mild cases, for removing the deformity in talipes varus. It is constructed principally of elastic cords, attached from the knee above to a piece of gutta percha carefully moulded on the foot. The book is well illustrated, contains some valuable matter, and whatever is derived from other sources has been honestly acknowledged.

The volume we have next to notice is a monograph of a very different description from the last. The causes, pathology, and treatment of club-foot receive, at the hands of the Surgeon of the Orthopædic Hospital, the fullest and most scientific consideration.

In the course of twenty chapters, with an appendix of cases, of this admirably illustrated book, everything at present known, or, at all events, worth knowing, is told of deformities of the feet, whether congenital or acquired.

It is unnecessary, perhaps, to enter into any lengthened analysis of the contents of the second edition of a Jacksonian Prize Essay, a name which speaks for itself. We may, however, be permitted to refer, in the first place, to the interesting historical summary in the opening chapter, in which the author takes the opportunity of correcting some errors of other writers. The chapters devoted to the anatomy and pathology of the disease are very full, and the great importance of fully distinguishing congenital from non-congenital cases dwelt upon, especially as concerning the prognosis and the treatment. Mr. Adams joins issue in no undecided manner, both with the principles and the practice advocated by Mr. Barwell in the book already mentioned. He also refers, with marked disapproval, to the method adopted by Mr. Syme, and other surgeons of



the Edinburgh school, who affect, the author states, to consider a club-foot cured, if the deformity has been remedied by section of the tendons. In fact, in reference to what may be styled the "immediate treatment" of club-foot, we thoroughly coincide with the views expressed in the following extract, except in mild infantile cases:—

"It is assumed, as an established fact, that the after-treatment should be most carefully conducted by the aid of mechanical appliances, although the contrary opinion may still be held and publicly taught by Professor Syme, of Edinburgh, who, after dividing the tendo Achillis, even in paralytic cases, allows the patient to walk on the second or third day. How can it be imagined that the reparative process in the divided tendon is sufficiently advanced on the second or third day to admit of exercise of the joint being resumed with advantage? Yet Mr. Syme observes that after the operation 'the bandage will be kept on for forty-eight hours, when no further treatment will be required, as the use of the limb in walking will be sufficient to bring the foot into its natural form,' and he relates several cases in illustration of this practice. However, the serious results which follow this procedure have been previously adverted to, such as non-union, or an extremely weak and elongated condition of the tendon, rendering the foot much less useful to the patient than before, and hopelessly incurable."

It is upon the proper combination of mechanical, physiological, and operative means, that Mr. Adams relies for obtaining permanently successful results. With reference to the period for performing tenotomy in infantile cases, the author considers that as early as possible after the first month, as the circumstances of the case will permit, is the best. He finds, practically, that the most favourable time is when the child is about two months old. In this Mr. Adams is opposed to the experience of Dr. Little, and of many surgeons, who consider that just before the child commences to walk is a more suitable time. For the arguments, *pro.* and *con.*, we may refer our readers to the book itself. The author lays great stress upon the order in which the tendons should be divided, considering it bad surgery to divide the Achilles' tendon at the same time as the rest, as thereby the fulcrum, or point of resistance, is lost, upon which you exert the force necessary in unfolding the foot at the medio-tarsal joint, besides other disadvantages which are thus referred to—

"There is no greater error in the treatment of severe varus, or one more frequently committed by surgeons of the present day than the

division of the tendo Achillis at the first operation, either by itself, or conjointly with the division of the other tendons. By such a procedure, too many objects have to be accomplished at the same time by mechanical means, and failure in some of them usually results; eversion of the foot is imperfectly obtained, depression of the os calcis is also imperfectly obtained, and the recurrence of the deformity rendered certain. It has long therefore been an established rule in Orthopædic practice that the tendo Achillis should be the last tendon divided, and that its division should be delayed till the equinus alone remains to be cured."

In reference to another important practical matter—the duration of the treatment, and the mode of regulating it—Mr. Adams has shown, by experiment, that tendons after division are united by new material, almost precisely similar in appearance and structure to the old. He, therefore, always allows a few days to elapse before commencing the mechanical treatment, in order to allow this new matter time for partial organization; adding, that this interval, and the rate of extension afterwards, should, in every case, be regulated by the presumed activity of the reparative powers of the patient. In conclusion, we may say of this treatise, to some of the more salient features of which we have thus alluded, that it is a work which, whether from a scientific or a practical point of view, does honour to the author, and is an acquisition of much value to the province of surgery.

*Parturition and its Difficulties.* By JOHN HALL DAVIS, M.D.  
London: Hardwicke. 1865. Small 8vo, pp. 354.

THE former edition of this work received a favourable notice at our hands (Vol. xxvii. of this Journal), and we are happy to be able to bestow the same praise on this, the second edition. The first thing about it that strikes our attention is a change of title. It is no longer "*Illustrations of Parturition*;" nevertheless, we think this title gives a more correct idea of the subject matter of the book than does the new one, which to our minds is too comprehensive; many of what may be called "*difficulties*," (*e. g.*, ruptured uterus, convulsions, plural births, &c.) not receiving any consideration. However, we are told, in the conclusion to Part I., that in a future volume, which will appear shortly, the author intends to treat of the complications of labour.

The work before us consists essentially of three parts—Part I.,

occupying 145 pages, contains the observations and opinions of the author in regard to the different varieties of difficult and preternatural labour, together with a description of the mechanism of parturition. Part II. brings before us the clinical histories of 152 cases of difficult and preternatural labour. Part III. gives a general summary of the statistics of 13,782 deliveries under the author's superintendence. There is one serious defect in these statistics, they do not give the proportion of first and subsequent labours, which greatly lessens their value and utility. The low rate of mortality among the patients of the Royal Maternity Charity, viz., 1 in 444, would seem to indicate St. Paul's Cathedral as the centre of a district which deserves to be regarded as the Utopia of lying-in women.

Dr. Davis still holds to the opinion that, *cæteris paribus*, the forceps operation is more dangerous to the mother than that of craniotomy, and, therefore, he enjoins that the forceps should never be used for the delivery of a dead child. We are satisfied that on this point—the comparative danger of delivering by the forceps, and by the crotchet—Dr. Davis is right, and that very erroneous notions have prevailed, and have had the support derived from a skilful but illogical use of statistics. We think it can be demonstrated that where the two operations have been performed *under like circumstances* as to the duration of labour, nature of the difficulty, and previous attempts at interference, craniotomy cases show a better result than do the forceps cases, thus incontestably establishing the point Mr. Davis stands out for.

Of the *cephalotribe* (about which we heard so much at the recent meeting in Dublin, of the British Medical Association), the author does little more than mention it by name, and that merely in a foot note, and in a deprecating sort of way. On this point, however, the author will probably alter his opinion, as the instrument, in some of its recent modifications, is likely to prove a real and valuable addition to the mechanical resources of the accoucheur.

The comparative advantages of the long forceps, and of turning (as originally recommended by Sir F. Ould), in cases of moderate pelvic deformity, are not yet finally agreed on amongst obstetric authorities. Towards the decision of this point we have the statement of Dr. Davis, that on at least three occasions, where the long forceps had utterly failed to accomplish the delivery, he succeeded in performing version, and in saving one of the children and all the mothers.



He gives, however, this very salutary caution, that, if the turning be not pretty easily accomplished, we must for the greater safety of the mother relinquish it and resort to craniotomy.

The extensive collection of clinical histories, recorded in the second part of the work, is of great value, and will afford much instruction to the thoughtful reader.

On the whole we feel grateful to Dr. Davis for the publication of this work. The opinions and the clinical experience of a man who has enjoyed such extensive opportunities for improvement, must form a real and permanently useful addition to obstetric literature, and we shall anxiously await the appearance of his promised work on anomalous or complicated labours.

1. *Injuries of the Spine ; with an Analysis of nearly Four Hundred Cases.* By JOHN ASHHURST, jr., A.M., M.D. Philadelphia: J. R. Lippincott & Co.. London: Trübner & Co. 1867.
2. *Clinical and Pathological Facts in reference to Injuries of the Spinal Column and its Contents.* London Hospital Reports, Vol. III.
3. *On Dislocations and Fractures of the Spine. A Clinical Lecture.* By JONATHAN HUTCHINSON, F.R.C.S. London Hospital Reports, Vol. III.

THE author of the little volume first on our list, and which does credit to the publishers by the manner in which it is got up—is surgeon to the Episcopal Hospital of Philadelphia. In his opening observations he remarks that—

“Injuries of the head have been looked upon with great interest by writers on surgery from the earliest days of our art, and the works of surgical authors, from the time of Hippocrates to the present day, abound in observations and instructions with regard to the management of that class of affections.

“Injuries of the spine, however, whether, as suggested by Sir Benjamin Brodie, because the spine has been considered as a mere appendage to the head, or possibly on account of the confessedly hopeless nature of many of these injuries, have received but comparatively little attention ;

and we find the same remarks and the same cases quoted (and not unfrequently, it must be acknowledged, misquoted) from book to book, without any apparent effort on the author's part to ascertain the correctness of his predecessor's observations."

He then refers to the great interest that was excited in the minds of the profession by the controversy between Sir Charles Bell and Sir Astley Cooper, on the propriety of resection in cases of fracture of the spine, and to the fact, that more reliable information on the subject has accumulated since that time; and concludes by offering the present essay as a contribution towards the settlement of the vexed question.

Dr. Ashhurst has examined the clinical histories of 394 cases of spinal injury, and of these he found that no less than 124, or 31·47 per cent. had been reported as instances of pure dislocation; 195, or 49·49 per cent. were alleged to be cases of fracture alone; and 53, or 13·45 per cent. as fractures with dislocation conjoined. He strongly suspects, however—and not, we believe, without reason—that in some of the cases reported as dislocations alone, there must have been bone lesions as well. The relative frequency with which these injuries affect different regions of the spine is given in the following table:—

Cervical region alone affected in . . .	.208,	or 52·79 per cent.
Cervical and dorsal regions affected in . . .	4, „	1·02 „
Dorsal region alone affected in . . .	106, „	26·90 „
Dorsal and lumbar regions affected in . . .	20, „	5·08 „
Lumbar region alone affected in . . .	37, „	9·39 „
Region not clearly indicated affected in . . .	19, „	4·82 „

The great preponderance is in the cervical region, a circumstance which Dr. Ashhurst accounts for on the ground that these cases being too often rapidly fatal, excite a larger share of interest in the mind of the observer. It should not be overlooked, however, that the anatomical arrangement of the elements of the spinal axis would warrant an *à priori* conclusion, that dislocation, if not fracture also, would be more liable to ensue in the cervical than in either the dorsal or the lumbar regions. As might be anticipated, too, with regard to the sex of those who met with injuries of this kind, the large majority occurred in males; and, while no age appears wholly exempt, the greatest number of dislocations and fractures of the spine have been met with during the active period of adult life.

The next portion of the work, devoted to the discussion of the symptomatology, is of considerable importance, and of much practical interest. The accurate diagnosis of the nature and extent of the lesion in cases of injury of the spine is always the point of greatest doubt and difficulty. After enumerating some of those perplexing, and apparently inexplicable cases, where the injury and the symptoms dependent upon it stand in no ordinary relationship, the author refers to the electric test of M. Landry, whereby the extent of the cord lesion in a downward direction may be ascertained:—

“Not only,” he states, “can the seat of the cord lesion be ascertained from observation of the parts paralysed, but the extent of the lesion has also been accurately determined before death, by observing what muscles can be made to contract by electricity. Thus M. Landry, in a case of dislocation of the fifth dorsal vertebra, found that the muscles of the thigh ceased to respond to electricity, while those of the leg, though equally paralysed, continued to contract when submitted to the electric stimulus. The autopsy showed that the part of the spinal cord whence arose the femoral nerves was disorganized, while the part below which gave off the crural nerves was quite healthy.

“Thus the fact that each segment of the cord constitutes a separate nerve centre, furnishes a means of most accurately diagnosing the extent of injury which the cord has received.”<sup>a</sup>

Allusion is also made to the occurrence of “flushed face,” which the author says has generally escaped the attention of writers on spinal injuries. It has only been observed in cases where the cervical portion of the cord has been seriously affected, and is a symptom of the gravest import. It has been accounted for by M. Topinard by the partial paralysis of the sympathetic nerve, that nerve deriving its cervico-cephalic branch from the “cilio spinal region” of the spinal cord, as demonstrated by Messrs. Budge and Waller. We are aware, in corroboration of this explanation, of the experiments of Claude Bernard, who found that division of the sympathetic nerve in the neck of a rabbit was followed by a marked increase of temperature of the corresponding ear, due to an augmented flow of blood to the part. Alteration of the vital temperature is a symptom which Dr. Ashhurst considers has not yet been sufficiently investigated. He believes, however, that—

“Persistent elevation of the temperature in spinal injuries is a most

<sup>a</sup> Landry: *Recueil des Travaux de la Société Médicale d'Observation*, Tom. i., p. xvii.



serious symptom, and furnishes grounds for a gloomy prognosis. It gives reason to fear that progressive disorganization of the cord is going on which will almost surely terminate fatally.

“*Diminution* of the temperature in the parts paralysed is, as might be anticipated, not an unfrequent symptom in the course of such spinal injuries as survive the risks of the earlier periods.”

In concluding a most instructive account of his analysis of the symptoms of injuries of the spinal cord, the writer, after dwelling upon the extreme importance of being able to say what is the probable amount of injury in any given case, which is, indeed, the only datum upon which to found even the most guarded prognosis, recapitulates as follows:—

“If the paralysis below the seat of injury be immediate, complete, and permanent, there is every reason to fear that the cord has been absolutely divided. If the paralysis be immediate but not permanent, it is probably a case of ‘concussion of the cord,’ so called, without serious structural lesion. Should paralysis come on after a few hours, and gradually increase to a certain point, then to diminish again, it is probably due to effusion of blood, within or without the cord, which, under favourable circumstances, may be reabsorbed, or coagulated, or may possibly remain in a fluid state without giving further annoyance, as in the case reported by Mr. Heaviside.<sup>a</sup> If, however, the paralysis gradually creep up, every day invading a fresh space, there is scarcely room to doubt that progressive disorganization of the cord is taking place, which, if not spontaneously arrested, will infallibly sooner or later prove fatal.”

Dr. Ashhurst disputes the authority of Dr. Brown-Séguard, in placing the proportion of cases which survive severe spinal injuries under the ordinary treatment, “at perhaps less than 1 per 100.” A table is given in support of this position, analysing the results in 394 cases, under the following heads:—Those who were sufficiently restored to pursue their former avocations, or to maintain themselves by comparatively active exertions, are classed as recovered; those as relieved, who, though benefited by treatment, could not be fairly considered as recovered; and those as not improved, who, though life was prolonged, yet remained as helpless as they were at the beginning of the treatment. The statistics are certainly sufficiently startling:—

<sup>a</sup> Cooper: *Disloc. and Fract. of Joints*, p. 545.

*Tabular View of the Results of 394 Cases of Spinal Injury.\**

Results	Cervical Region (212 Cases)	Dorsal Region (130 Cases)	Lumbar Region (57 Cases)	Region not stated (19 Cases)
	Cases. Per ct.	Cases. Per ct.	Cases. Per ct.	Cases. Per ct.
Recovered . . .	38 or 17·92	28 or 21·54	15 or 26·32	8 or 42·10
Relieved . . .	6 „ 2·82	13 „ 10·	6 „ 10·52	3 „ 15·79
Not improved . .	2 „ ·94	6 „ 4·61	1 „ 1·75	3 „ 15·79
Died . . .	164 „ 77·36	82 „ 63·08	34 „ 59·66	5 „ 26·32
Not stated . . .	2 „ ·94	1 „ ·77	1 „ 1·75	... ..

Before proceeding to consider what is the best method of treating injuries of the spine, Dr. Ashhurst gives an interesting review of the opinions of the early writers, from Hippocrates down to more recent times. The advice given is very various and contradictory—some authors recommending the reduction of a dislocated spine by the most violent measures, and others, like Heister, leaving the matter very much “to God and the goodness of Nature.” “For slight wounds,” he says, “heal quickly, but those which are more severe cannot be cured in any way.”

The operation of resection, so far as Dr. Ashhurst has seen, has been performed twenty-five times since Cline first practised it. Louis' operation, performed in 1762, is not regarded by the author as a case of resection at all, merely consisting, he says, of the removal of some loose fragments in a case of gunshot fracture. Elaborate tables are given, too long to quote, showing in a tabular view the treatment employed in the injuries of various regions; an analysis of the nature of the injuries as regards results; an analysis of the results as regards the treatment employed; and a comparison of the results of various modes of treatment in each. From these tables and from the considerations urged in support of his views, the author considers the following conclusions justifiable:—

“1. Injuries of the spine are not nearly so fatal as is generally supposed, and they have been, not unfrequently, completely recovered from.

“2. By watching carefully the symptoms and knowing the lesions

\* In this table, as in others, it must be observed that cases in which *two regions* of the spine were involved are noted under *each region*.

which they indicate, the patient's progress toward health or death can be pretty accurately foreseen in most cases.

"3. Whenever there is reason to believe that one or more vertebræ have been displaced, extension should be employed: temporary, if that be sufficient; if not, continuous.

"4. In no case do resection or trephining offer a reasonable prospect of improving the patient's condition, but, on the contrary, there is reason to fear that they would increase the chances of a fatal termination.

"5. Those cases of spinal injury which are not adapted for the employment of extension, should be treated in accordance with ordinary rational and physiological principles.

"6. No new mode of treatment is entitled to adoption in a class of injuries so serious as this, unless it can be shown by clinical experience that it is at any rate *not less successful* than the modes commended to us alike by reason and long experience."

The volume, whose contents we have thus analysed, contains very much to interest the practical surgeon. The information it affords is most valuable and instructive, the more so, as it refers to a class of cases which are comparatively rare, thus rendering it impossible for any single individual to meet with a number sufficiently large to warrant a very positive expression of opinion. The question, however, of surgical interference in cases of injury of the spine is as yet open, notwithstanding the strong evidence which the statistics adduced by Dr. Ashhurst afford as to the impropriety of resection. Extension, as practised by the ancients for dislocations, seems in later times to be the most successful method of treatment as regards these displacements, the mortality being nearly four times greater when constitutional treatment has been relied on exclusively, than when attempts have been made to reduce the dislocation by extension or rotation. In concluding this notice it may be fairly urged upon surgeons the desirability of making known any facts bearing upon this important subject, as it is only from a sufficiently large number of well authenticated clinical histories that any just induction can be made.

In the last number of the journal we briefly noticed the two articles on injuries of the spine published in the *London Hospital Reports*, Vol. iii., and we now again refer to them for their bearing on the opinions advanced by Dr. Ashhurst. One of them is in the form of a clinical lecture by Mr. Jonathan Hutchinson, and gives a summary of the clinical experience recently obtained in the hospital regarding displacements at different parts of the

spinal column. His object, he states, is to furnish conclusive evidence in support of the usual practice at the hospital, namely, abstaining from operative interference. In support of his conclusions an account is given in the first of the two articles of some nineteen cases of spinal injury; and it is asserted that while a great many cases, if let alone, recover when placed under favourable circumstances, it is very rare, indeed, that after any *post mortem* it could be alleged that an operation would have done good; and that, moreover, it is impossible beforehand, to tell which are the cases where the surgeon may interfere with advantage. A very important fact is brought out by Mr. Hutchinson, that permanent displacement of the vertebræ to any material extent, is comparatively rare, not happening, he states, oftener than once in ten times. In many of the reported cases displacement must have taken place to the extent of thoroughly crushing the cord, and yet the bones were found, on examination, to have spontaneously resumed their proper places. The writer of the article also considers compression of the cord from the pouring out of blood very uncommon, and that this lesion is often incorrectly invoked to explain the presence of paralysis when no fracture has been discovered.

“Large effusions of blood, whether in connexion with fracture or contusions of the spine are, I believe, amongst the very rarest occurrences. I have never myself seen any effusion to the extent of possible compression, and in the majority of cases there is little or none. The injury is a crush, and is not one at all likely to cause much bleeding. There are no large arteries to be injured. When you examine a specimen of fractured spine, you will find the muscles and soft parts externally much ecchymosed, there will be also a few small blood-clots adhering to the edges of the broken bones, but there will be little or no blood between the bone and the theca, and none at all in the thecal cavity. I speak of what is usual, and am well aware that exceptions may occur. The theca (*dura mater*) is very rarely torn, and often, on exposing it, you might imagine that the cord was not injured. Nay, even further than this, you find the pia mater of the cord entire and without ecchymosis, and only on slicing the cord through, do you discover that its substance has been utterly smashed. I show you a sketch of a cord thus injured. You will see that the cord-substance, for nearly an inch and a half, is reddened by effused blood, and its substance broken into a diffuent pulp. Yet, in this instance, the pia mater was still entire.”

In concluding a necessarily brief notice of Mr. Hutchinson's Lecture, which abounds with practical information of the utmost



clinical value—tending, we believe, very strongly against any attempt being made to treat injuries of the spine by operation—we would wish to call attention to the following extracts:—

“In making a diagnosis, in the first instance, loss of sensation is of much more value than loss of motion, for the obvious reason that the latter may be only apparent. I will venture one hint as regards the diagnosis of fracture from cases of concussion of the spine. It is this, examine the lower extremities carefully as regards sensation, and if you find that at any parts sensation is utterly lost, so that you can thrust pins into the skin, rest assured that there is more than mere concussion. It may be laceration of nerve-trunks, or it may be a crush of the cord, or of part of it, but there is certainly some structural lesion. I am not much of a believer in severe symptoms resulting from mere concussion of the spine, but I feel sure that it never produces absolute paralysis of any part, however small.

“It is obvious that the *prognosis* will depend upon your estimate of two factors. First, the position of the injury, and, secondly, the extent to which the cord has been damaged. First, then, are the cases in which the existence of complete paraplegia below the seat of injury, indicates that the cord has been most severely damaged. In these the danger to life increases in proportion as we ascend towards the medulla. Many, perhaps most, of the fractures in the lumbar and lower dorsal regions, might recover if it were possible to avoid cystitis and bed-sores. There is nothing necessarily fatal in complete and permanent paralysis of the lower extremities and of the sphincters. But, in these cases, you may hope for a better result than this. In not a few cases the paraplegia will disappear and the patient make a complete recovery. You have but to see to his careful nursing, place him on a water-bed, and abstain from serious interference.

“If the fracture be high enough to implicate the respiratory muscles, a new element of danger from pulmonary congestion, &c., is added, and if it be so high as to paralyse all the thoracic muscles, the prognosis becomes exceedingly grave. But very few such patients recover or even survive many days.”

The facts of the interesting and instructive case of Spinal Injury, published in our last issue, possess much importance relative to the question in dispute, and should not be passed over. Dr. MacCormac has there conclusively shown how a condition may exist apparently most favourable for the operation, so far as the mere act of trephining is concerned, when the injury to the cord is at the same time irreparable, and much more severe than could reasonably

have been expected. We fear, in short, that the histories of *post mortem* examination in fractures or displacements of the spinal column afford, as a rule, but slight encouragement to operative surgery.

### WORKS ON ANATOMY.

- 1.—*Quain's Elements of Anatomy*. Seventh edition. Edited by WM. SHARPEY, M.D., F.R.S.; ALLEN THOMSON, M.D., F.R.S.; and JOHN CLELAND, M.D. In 2 vols., 8vo. Illustrated by upwards of 800 engravings on wood. London: Walton. 1867.
- 2.—*The Physiological Anatomy and Physiology of Man*. By R. R. TODD, W. BOWMAN, and L. S. BEALE. A new edition by the last-named Author. Part I. London: Longmans. 1866.
- 3.—*Atlas of Surgical and Topographical Anatomy*. By B. J. BÉRAUD. Illustrated by one hundred plates, drawn from nature, by M. Bion. Translated by ROBERT THOMAS HUME, M.R.C.S., Eng. Complete in eleven parts. London: Baillière. Nos. 3 to 11.
- 4.—*The Nervous System*. By LUDOVIC HIRSCHFELD. Edited in English by ALEX. M. MACDOUGAL, F.R.C.S. With artistically-coloured lithographic illustrations, designed by J. B. Lèveillé. London: Churchill. Nos. 1 and 2.
- 5.—*The Convolutions of the Human Cerebrum Topographically Considered*. By WM. TURNER, M.B. Edinburgh: Maclachlan and Stewart. 1866.
- 6.—*Osteology: A Concise Description of the Human Skeleton, adapted for the Use of Students in Medicine. Accompanied by an Explanatory Atlas of Plates*. By A. S. NORTON. London: Hardwicke. 1866.

QUAIN'S *Anatomy* has now reached the seventh edition. The general anatomy has again been revised by Dr. Sharpey, and the descriptive anatomy is now in a great degree recast, under the supervision of Dr. Thomson, by Dr. Cleland, Professor of Anatomy in Queen's College, Galway. The new edition of Todd and

Bowman's *Physiological Anatomy* appears under the editorship of Dr. Beale, who assisted the authors in completing the first edition. The first part now before us, consisting of the *Introduction* and the chapters on *Structure* and *Chemical Composition*, is complete in itself. The reputation of both works is too well established to require comment; they have long been, and most justly so, esteemed as the highest standards on the subjects of which they treat, and we need only say they have not suffered at the hands of their present editors.

In our issue for August, 1866, we spoke in very laudatory terms of the first and second parts of Béraud's *Topographical Anatomy*. The work is now complete, and fully justifies all we said of it. The anatomy of all the important regions of the body is shown in 109 beautifully-coloured plates, so that the relations of the several parts may be seen at a glance. In one plate only have we detected a fault, viz., that which shows the interior of the female pelvis. The uterus is shown ante-flexed, and the vagina as a straight tube, with the os uteri looking directly downwards, a condition of the parts very far removed indeed from their natural state.

Of Hirschfeld's *Anatomy of the Nervous System* we have two numbers, containing five single and four double plates. It is intended to complete the series in twelve numbers, containing 56 single and nine double plates, or 74 in all, embracing the anatomy of the nervous system of the whole body. Judging from the specimens before us, the work will be one of great value, and the English edition will be well worthy of the reputation the work has already obtained on the Continent. Dr. Turner's pamphlet on the *Convulsions of the Cerebrum* will prove a valuable aid to those who are engaged in studying the functions of the different portions of the cerebral mass, a study to which the recent observations on aphasia lend renewed interest.

Norton's *Osteology* used rightly, will, we are sure, prove a useful book for students. We hope it will not be taken as a substitute for a good set of the bones themselves. The atlas consists of twenty uncoloured lithographic plates, in each of which several bones, or different aspects of the same bone, are shown; and instead of mere outline the artist has endeavoured, and very successfully too, to represent the solid bone. He has also placed figures on several points of the drawings themselves, so that there is no difficulty in defining the exact part referred to in the accompanying description.

*Illustrations of some of the Principal Diseases of the Eye, with a Brief Account of their Symptoms, Pathology, and Treatment.*  
By HENRY POWER, F.R.C.S., M.B., Lond.; Surgeon to the Royal Westminster Ophthalmic Hospital; Assistant-Surgeon to, and Lecturer on Physiology at the Westminster Hospital.  
London: John Churchill and Sons, new Burlington-street. 1867.

THIS work is an admirable treatise on diseases of the eye, and reflects very great credit both on its author and on its publisher; it is one of the handsomest and best got up medical works which has been issued from the press for some time; we would especially commend its letterpress and binding.

Mr. Power is evidently thoroughly conversant with the foreign, especially the German, literature of the present day, and makes use of it, perhaps, a little to the exclusion of British literature. In this he may possibly be right, as the principal advances which have recently been made have in reality originated in foreign schools. His work is a valuable one, and as a rule a very reliable book of reference to what has been accomplished during the past ten years. The author, so far as his knowledge extends, is most liberal in giving credit to whom credit is due, and in the quotation of authorities; indeed, one of the faults of the work consists, in our opinion, in its too great impartiality—a fault not usually complained of. The author is often very profuse in his quotations of the opinions and modes of treatment adopted by others, but very reticent as to what his own views may be; thus, in the ten pages devoted to the modes of treatment of entropium, trichiasis, and distichiasis, he does not definitely recommend any one method, but leaves us in the dark as to his own practice, unless we are to gather from his statement of his having seen Mr. Guthrie's operation "succeed very fairly," that he carries it out. In this same chapter on entropium, Arlt's modification of Jaesche's operation of transplantation is most unaccountably ascribed to Professor E. P. Wright of this city. No one will, we are sure, be more surprised at this error than Dr. Wright himself, for in his paper on the subject, in the 39th volume of this journal, he distinctly mentions the sources of his information and of his illustrations. While on this subject we may mention that the only radical cure for entropium as met with in this country is that practised by Sir Wm. Wilde; we would again also remark that the plan of treating staphyloma by



abscission, attributed by Mr. Power and others to Mr. Critchett, was described and performed by Sir Wm. Wilde very many years ago. We lately saw a person on whom Sir William had performed this operation upwards of twenty years ago!

We were somewhat surprised to find so little information on the treatment of orbital aneurism, a subject of such great importance to us all. We believe the carotid artery has been tied for orbital aneurism upwards of thirty times, and yet on looking to Mr. Power for the latest information on, and the statistics of the subject, we are briefly referred to the eleven cases enumerated by Demarquay in his *Traité des Tumeurs de l'Orbite*, of which we gave an account in the number of this journal for November, 1860. We cannot but regret that the large space given in a previous chapter to the comparatively useless detailed measurements of the orbits of forty-eight skulls had been given to such a practical matter as ligature of the carotid.

The plan of treatment of gonorrheal ophthalmia "now generally practised" consists, according to Mr. Power, in supporting and stimulating the patient by "half-a-pound of rump-steak twice a day, with a pint of beer," the removal by an attendant of all collection of matter, and the prevention of "its accumulation by the injection from an india-rubber bottle of either pure cold water or a solution of alum, containing two grains to the ounce, regularly every quarter or every half hour throughout the day, dropping into the eye after each ablution a drop of nitrate of silver of the strength of two grains to the ounce; or, as Mr. Collis recommends, one quarter of a grain to the ounce." No allusion is made to the compress bandage—a valuable aid in the treatment of this affection; neither are we informed what should be done in cases of extensive chemosis. Now, a large number of these cases do not apply for medical assistance until the lids are swollen and œdematous, and the conjunctiva chemosed, bulging up over the cornea and momentarily threatening its vitality; in such a case we never hesitate to freely open the bag of the conjunctiva, and thus relieve the congestion, free the strangulated cornea, and prevent its perishing and bursting.

Mr. Power would appear to be an advocate for Mr. Hancock's condemned operation of dividing the ciliary muscle in anterior and posterior sclero-choroiditis, in suppurative keratitis, staphyloma of the cornea, sympathetic ophthalmia, and seems to prefer it to iridectomy in the treatment of glaucoma.

Here and there the phraseology is somewhat peculiar; thus at page 39 the author speaks of "the distension and *pullulation* of the outer parts of the globe which are associated with" myopia; at page 22, tarsorrhaphy is said to "consist in *refreshing* the edges of the lid (? lids) at the outer canthus, and bringing them together with sutures;" at page 522, in alluding to a case of flap extraction, it is stated that "on making the section *the knife carried off the lens*." At page 596 *diverging* strabismus is said to occur frequently in hypermetropia; this we take to be a clerical error for *converging*. There are some other clerical and typographical errors throughout the work which will, we have no doubt, disappear in a second edition.

Taken as a whole, however, the work is an excellent exposition of the present state of knowledge, and may be regarded as one of the best treatises on diseases of the eye in general in the English language, for it enters into the consideration of nearly every affection, whether seen by the unassisted eye or by means of the ophthalmoscope, and embodies all the latest pathological observations. We would recommend the work specially to those who may not possess Wecker's splendid work *Maladies des Yeux*, or who may not have access to the German or French literature. From the nature of the work, and its great range of subjects, it is almost impossible to select suitable extracts. We append a couple, which will illustrate the character of the book. At page 414 the author remarks:—

"The pathology of glaucoma is still obscure. v. Gräfe, with most modern ophthalmologists, regards the forms of the disease which have just been described under the terms of acute and chronic glaucoma as the true types, and consequently maintains that it is essentially an inflammatory affection, the choroid being the membrane primarily and chiefly affected. On the other hand, M. Donders, with whom M. Wecker appears to coincide, considers that simple glaucoma, or that form in which excavation of the optic nerve with preservation of the transparency of the media occurs, is really the type, to which inflammation may or may not be superadded, and that it essentially consists in a neurosis or functional disturbance of the secretory nerves of the eye, in many instances maintained and intensified by tension and traction exerted upon the iris. He remarks that, in simple glaucoma (the last of the above-described forms), the eye acquires a remarkable degree of hardness, which is clearly due to hypersecretion of the humours of the eye, and which is yet unaccompanied by the least trace of inflammation. He believes that these

secretions are under the influence of the nervous system, and supports his view by reference to the effects of section of the fifth pair of nerves, which induces an excessive softness of the globe, and is accompanied by a singular diminution of the secretion of tears. On the contrary, when from any cause the secretory nerves are irritated, the secretion of the vitreous is augmented, and the lens and iris are pushed forwards, but the traction and tension of the latter again react as irritants upon the secretory nerves, causing a further increase of secretion and of intra-ocular tension. It is to be remarked, however, that though diminution of the intra-ocular pressure is well-marked after section of the fifth, it is by no means constant after pathological changes, involving destruction of the nerve.

“ Another view of the pathology of glaucoma, to the effect that it is primarily associated with *rigidity of the sclerotic*, has been advanced and ably supported by M. Stellwag v. Carion, who considers that the increased tension of the globe observed in some cases of glaucoma, where no inflammatory processes have been or can be shown to be present, is opposed to v. Gräfe’s view, and that M. Donders’ theory is supported by no matters of fact, but rests only on analogy.

“ M. Stellwag v. Carion<sup>a</sup> observes that the hardness of the globe had long ago been pointed out by Dr. Mackenzie as a fundamental feature of the disease, but that up to the present time no clear perception of its nosological significance has been obtained, whilst it has been erroneously considered as an expression of, and synonymous with, increased intra-ocular pressure. In point of fact, however, the perceptible resistance of the globe to pressure is no simple phenomenon, but results on the one hand from the amount of intra-ocular pressure, and on the other from the degree of elastic extensibility (resilience) possessed by the ocular capsule. It is impossible to consider the two factors separately. It can only be said that any augmentation of the pressure in the interior of the eye increases the tension of the capsule, and consequently the perceptible resistance; but at the same time the eye must, with unchanged internal pressure, appear so much the harder in proportion as the sclerotica is less yielding and extensile. Similar conditions are present in the case of the hardness of the pulse in the larger arteries, the hardness being always greater in stiff atheromatous arteries than in normal arteries, especially in those of childhood.

“ Now, rigidity of the sclerotic and consequent unusual hardness of the eye (so v. Carion continues to argue) is not infrequent as a natural condition, perhaps inherited and congenital, and tending to increase with age, but still more frequently as an acquired condition due to senile changes and atheromatous degenerations. That in such cases the hardness does not

<sup>a</sup> Lehrbuch der Prakt., Augenheilkunde, p. 270. 1867.

proceed from any increase of the intra-ocular pressure, is abundantly shown by the circumstance that, as a rule, neither subjective nor objective functional disturbances are present, and that both eyes may even permanently retain their full integrity of function.

“The physical changes occurring in the sclerotic, and occasioning its rigidity, have not been very accurately ascertained; but Coccius has observed the presence of fatty, and Donders of calcareous degeneration. But if now the increase in hardness of the globe be not necessarily combined with an increase of the intra-ocular pressure, but is attributable to other causes, it is difficult to admit the latter as constituting an integral constituent of the glaucomatous process; rather it would appear that the increased resistance of the bulb in simple glaucoma, and in the remissions of the inflammatory form is to be referred purely to the rigidity of the capsule of the bulb; and the circumstance that the resistance which the globe offers to external pressure in indubitable cases of glaucomatous affections is frequently not greater than that which is met with in perfectly sound eyes, with rigid capsule, is a strong argument in favour of this view. The constant occurrence of excavation of the optic disk in glaucoma cannot be considered as a valid proof of the temporary or permanent augmentation of the intra-ocular pressure, since this may well result from diminution of the resistance of the cribriform layer, which may, *per se*, without any alteration of the normal pressure, occasion the excavation; and such diminution of its resistant power may be induced by simple neuritis, atrophy, or inflammatory change, such as is frequently observed to accompany the acute glaucomatous processes.

“In conclusion, M. Stellyag observes that, if an increase in the amount of intra-ocular pressure ceases to be an essential element in the production of glaucoma, the rigidity of the sclerotic capsule alone remains, which accounts for the rare occurrence of glaucoma in young subjects, and likewise for the curative results of the modes of operation found effective in obtaining relief; since in these the sclerotic is divided through a considerable arc, and the wound is closed by a yielding cicatrix, which in some degree supplies the absence of elasticity of the ocular capsule itself. He then goes on to show how the various changes above noted may result from the circulatory disturbances induced by the rigidity of the sclerotica.”

After referring to the causes and mode of origin of panophthalmitis, Mr. Power continues:—

“Under whichever of these processes the inflammation, leading to general suppuration of the globe, may set in, the patient usually experiences intense pain in the eye, which rapidly extends to the temple, brow, or cheek; the lids become swollen, red, and œdematous; the eye-ball bulges forward; the conjunctiva becomes chemosed; the subconjunctival



vessels are large and numerous, giving the eye a dull appearance, and a circum-corneal zone becomes more or less marked; the surface of the cornea loses its polish, and it presents a nebulous appearance throughout its whole thickness; the iris is pressed forwards, diminishing the depth of the anterior chamber; its markings are confused, and the pupil is either small or, more generally, widely dilated. In the latter case, especially after severe blows, blood may be frequently discovered in the vitreous, which, even without this, is so hazy as to render an examination of the fundus difficult. The tension of the globe increases; it becomes exquisitely tender; and violent throbbing is experienced, coincidently with which the formation of pus takes place in its interior.

“Where the primary injury has been a blow, the sight is usually immediately lost; but when it is the consequence of inflammation, extending from the outer tunics, vision is only gradually lost by intra-ocular pressure, and sparks, flashes, and other subjective symptoms of irritation of the optic nerve, are complained of.

“In the cases which occur after an attack of the epidemic cerebro-spinal meningitis, as well as in the metastatic form seen in pyæmic conditions of the system, both eyes are almost always simultaneously affected. This occurred in nine out of eleven cases observed by Jacobi, and in every instance the eye or eyes affected were completely lost.

“In traumatic cases, the disease is, of course, limited to the one that has received the injury, but the other is extremely likely to suffer from sympathetic ophthalmia.

“The pathological changes which occur in these cases have been the subject of much discussion and of many inquiries, of which those of Schweigger,<sup>a</sup> Ritter,<sup>b</sup> Schiess,<sup>c</sup> and Weber,<sup>d</sup> are most deserving of perusal, and constitute the greater part of what is at present known respecting the microscopic changes which take place in the several humours and tunics in the progress of acute inflammation.

“C. Schweigger observes that, in advanced cases of choroiditis, where the whole of the choroidal stroma is infiltrated with pus, the exact starting-point of the suppurative process is very obscure; but in cases of more recent date, the formation of small collections of pus may not unfrequently be found to be limited to the internal vascular layer of the choroidal *stroma*, where they may be easily overlooked on account of the strong adhesion of this layer to the true capillary layer of the choroid, or chorio-capillaris. Hence we have here an exemplification of the general fact that the earliest occurrence of suppurative changes take place by the side of vessels; and M. Schweigger has assured himself that the pus cells proceed from

<sup>a</sup> Archiv. f. Ophth., Bd. v. Heft. ii. p. 216.

<sup>b</sup> Idem, Bd. viii. p. 18.

<sup>c</sup> Idem, Bd. ix. p. 22.

<sup>d</sup> Virchow's Archiv., Bd. xix. p. 367.

alterations and proliferations of the corpuscles of the connective tissue with which the vessels are so abundantly accompanied. Very frequently, however, purulent collections take place between the choroid and the retina, accumulating till these membranes are completely detached from one another. The retina then becomes coarctate, or extends like a cord, column, or funnel-shaped body, from the optic disk towards the surface of the lens, against which it may even be compressed, as a grey semi-transparent pultaceous mass, by the rupture of its continuity with the papilla. The lens is pushed forwards by the gradual increase in the purulent mass, and the anterior chamber is reduced to extremely small dimensions. Besides the alterations which occur in the connective-tissue corpuscles, attended by the formation of pus, considerable changes take place both in the stellate pigmentary cells of the choroidal stroma, and to a less degree in the hexagonal cells of the internal pigmentary layer, which in some parts lose their pigment, and in others contain pigment of an unnaturally dark hue. Here and there, in both portions of the membrane, cells may be seen, which appear to be passing into a condition of fatty degeneration. M. Schweigger believes that the development of pus cells may take place in the substance of the retina, and, by gradually breaking down its elements and diffusing themselves into the vitreous, may lead to atrophy and pigmentation of that tunic. As regards the vitreous, he has observed in acute cases an active process of cell-development in its structure, some of the new cells being large, branched, anastomosing with one another, and nucleated; others smaller, and presenting intermediate forms between these and pus corpuscles. They sometimes develop pigment in their anterior. As regards the lens, he only observes that its opacity commences in the outer layers.

“ Dr. Ritter’s experiments, made with a view of determining the progress of violent general inflammation of the eye, and the origin of the pus, were performed on rabbits. He introduced a needle, and pressed the lens against the choroid with considerable violence. The results which he obtained may be best understood by describing successively the changes observed in the several tissues.

“ As regards the vitreous, it must be remembered, Ritter holds, that in the normal condition no cellular structures are to be found distributed through its tissue. Cells occasionally appear in inflammation, but are then, he believes, derived from the choroid. In his opinion, simple injury to the vitreous, even though extensive, never leads to the formation of pus within it, nor has he ever observed any extravasation of blood. The first appearance of pus always appeared just within or without the lower part of the hyaloid membrane, and, gradually increasing in amount, pressed towards the centre of the vitreous, the upper part of which usually remained clear to the later stages. He considers that although, as Schweigger had previously stated, pus cells may be found alike in the

vitreous, retina, and choroid, they can only be developed in the latter membrane, since in the two former tissues the anatomical elements fail, out of which pus corpuscles can originate. The real origin of the pus cells is to be looked for in the unpigmented stroma cells of the choroid, and in the nuclei of the muscular-fibre investment of the vessels, which enlarge and divide. The branched pigment-holding cells of the stroma, on the other hand, long remain quite unaltered, though they ultimately break down, and leave only little clumps of pigment. As soon as inflammation is established in the choroid, its vessels increase in diameter, and subsequently the connective-tissue cells enlarge, and, together with the nuclei, increase in number, exerting so much pressure upon the vessels as to effect their obliteration. A fibrinous exudation is poured forth, diffusing itself equally through all the intra-ocular tunics. In the meanwhile, the inner layer of pigment cells has undergone various changes. Many lose their hexagonal form, become enlarged, pouched, and pressed together, so that the clear lines of separation normally present are lost; the pigment becomes distributed in a thin layer beneath the cell-membrane, whilst the central and larger part of the cell remains clear, and often contains two nuclei. Some of these cells, breaking down, permit the passage of the pus cells, hitherto lying on their outer side, into the space between the choroid and retina, where they form thin layers.

“ The retina still opposes a certain resistance to their entrance into the vitreous, but soon they may be seen lying between the elements of the retina, which are separated from one another, and broken down, and at length they gain admission by one or many points into the vitreous. Fragments of the membranæ limitantes, nerve cells, radial fibres, and elements of the bacillar layer may then be found near the centre of the globe; but, even at this stage, isolated patches of the retina may be seen presenting its natural structure. In some instances, it would appear that the pus may enter the vitreous by another path, viz., through the separation of the retina at the ora serrata from the zonula of Zinn, but this does not occur to any great extent.

“ The vitreous, in most instances, becomes at an early period so reduced in consistence as to be almost or completely fluid, whilst its transparency is greatly impaired by the presence of minute granules, and by degenerated epithelial cells. It is ultimately absorbed, and the whole posterior chamber of the eye becomes filled with pus, with which event this stage of the process terminates.

“ The part played by the iris is important. Often at first it is only slightly affected, the cells slowly undergoing changes analogous to those already described in the choroid. Sometimes, however, the inflammatory symptoms are more active, pus, in the formation of which the muscular-fibre cells of the vessels may be distinctly seen to take a part, being



developed, which, falling the bottom of the anterior chamber, constitutes an hypopyon, or, as more frequently occurs in rabbits, on account of the viscosity of the liquor puris, forms a consistent mass projecting into the anterior chamber. The epithelial cells of the uvea, and the pigment cells of the iris, are very resistant of change.

“ The changes occurring in the retina during the suppurative process are that the radial fibres enlarge, become granular, and the nuclei multiply. The nerve cells also become granular, and their contents frequently undergo fatty degeneration. In the external granular layer, hyaline spherical bodies may occasionally be seen, often three times as large as pus corpuscles. They resemble mucus corpuscles, possess no investing membrane, but strongly refract light. M. Ritter considers that they are formed by the contents of the bacilli, pressed out by the pressure of the surrounding pus cells. The inner portion of the bacilli cannot in general be traced.

“ The capsule of the lens, and the epithelial cells of the anterior capsule, never exhibit any pathological change, even to the very last. For some time the separated portions of the lens remain clear, but subsequently they become cloudy, the outer layers of fibres being detached from one another, irregularly crumpled and infiltrated with pus, whilst the more deeply-seated fibres are scarcely altered, being only lightly punctuated with irregular swellings on their edges. Remains of the lens are always found, even in atrophic eyes.

“ As regards the outer tunics, the sclerotic always remains unchanged, but the conjunctiva becomes vascular and chemosed. A well-marked circum-corneal zone is formed, and the cornea is covered with vessels, which Ritter found on the twenty-fifth day had nearly reached the centre, and the corneal tissue is much softened; the nuclei are enlarged but not multiplied. When these processes have run their course, the eye begins to shrink, and its complete atrophy is the final result. As regards the time occupied in these processes, M. Ritter's examination showed that from the sixth to the tenth day pus had already been formed in considerable quantity, breaking down the retina, and penetrating into the vitreous. On the twelfth day the pus occupied about one-half of the posterior part of the bulb, and by the sixteenth to the twenty-fifth day, the whole of the vitreous was infiltrated. The globe, however, had at the same time lost but little of its tension. The later stages were not noted, all the eyes being removed for examination at this period.

“ I venture to give one more account of the pathological changes observed in panophthalmitis—that of M. Schiess, who also experimented on rabbits, and established general inflammation by dividing the middle of the cornea in several directions with scissors. The iris soon protruded through the wound, the centre of which formed a kind of funnel-shaped cavity, occupied by a plug of coherent pus that constantly underwent



renewal. The whole eye assumed a conical form, and diminished in size and firmness. The conjunctiva became œdematous, and there was considerable purulent discharge. In one case, where the eye was removed on the twenty-ninth day after the injury had been inflicted, and was examined after eighteen days' immersion in chromic acid, it appeared like a utricle filled with pus, the anterior swollen edges of which consisted of the iris fused with the altered corneal tissue, and infiltrated with pigment. The central opening formed a channel by which the pus, so long as it was developed in the interior of the globe, could be discharged—until, in fact, complete atrophy or phthisis bulbi took place, no traces of the lens nor of the vitreous, except near the optic entrance, could be discerned. The sclerotic appeared somewhat thickened, and in consequence of a condensation of the fibres of the lamina fusca, was intimately attached to the choroid. Posteriorly, the limits of the two were clearly defined; but in the neighbourhood of the ciliary processes they appeared to be fused together. At this part some increase in the connective-tissue corpuscles of the sclerotic was noticed, especially near the corneal margin. The same was observed in the superjacent connective tissue, where a little pus had formed. The proper stroma of the choroid was decidedly thickened, the interstices were filled with nuclei or small cells, without any very definite cell-wall, and there were numerous fusiform bodies, each of which appeared to contain several nuclei. M. Schiess does not entirely agree with Ritter in thinking that the pus cells originate from choroidal stroma cells destitute of pigment, but their endogenous formation from other cells is perfectly obvious. The number of pus cells constantly increased towards the inner surface of the choroid. The condition of the blood-vessels was very remarkable, as they appeared to have atrophied in consequence of pressure made upon them by the process of cell development. M. Schiess appears to think that the real seat of origin of the suppurative process is in the connective tissue surrounding the vessels, and is of opinion that Ritter's preliminary stage of dilatation of the blood-vessels is doubtful. The focus or chief seat of the purulent deposit was in the chorio-capillaris, nearly one-half of the entire increase in thickness of the membrane being due to the changes occurring in this layer, the cell proliferation being in truth enormous. The internal layer of pigment cells retained for the most part the regularity of their arrangement, though in some places they appeared to have given way under the pressure of the new formations. Every part of the inner portion of the choroid was thoroughly infiltrated with pus cells, but no evidence could be obtained of the endogenous formation of pus cells from the pigment cells. In no instance was the basement membrane of the choroid recognizable. The retina presented different appearances according to the local intensity of the production of pus cells, and of the serous exudation. Although nowhere healthy, its elements here and there preserved their normal relations to other parts,

and especially in those cases where it was still covered by any remains of the vitreous. An especially active proliferation process appeared to have taken place near the entrance of the optic nerve, which was distinctly excavated. Around the optic papilla the retinal fibres appeared torn, and were directed straight forwards in bundles, which were thoroughly impregnated with pus. The whole retinal tissue appeared dull and hazy, and in parts was converted into fibrous or granular heaps, lying on the choroid. In other parts the tissue was infiltrated with serum, and radiating fibres were seen, together with large pale nuclei, a few ganglionic cells, and elements of the granular layer. The radial fibres generally appeared swollen, broad, and with fibrous structure. The outer limitation against the choroid was more distinct than the inner against the vitreous, in which last, fragments of the retina lay loose; or perhaps, more correctly speaking, the place of the vitreous was occupied by a chaotic mass of retinal tissue, disintegrated choroid, and pus cells. He saw no remains of the *membranæ limitantes*."

The work is profusely illustrated with twelve plates containing seventy-two chromolithographs, and numerous woodcuts scattered through the text. The coloured illustrations, though not equal to Dalrymple's or Sichel's splendid plates, are pretty fair representations, and reflect great credit on Mr. Power as an artist. Figure 32 is a good representation of suppurative keratitis with pus in the layers of the cornea and in the anterior chamber. We would again take exception to and reverse the nomenclature of Mr. Power and others; we maintain with Sir Wm. Wilde that pus in the anterior chamber should be called *onyx*, and pus in the cornea *hypopyon*. Eighteen coloured figures are illustrative of diseases seen by means of the ophthalmoscope.

*On the Action of Medicines in the System.* By FREDERICK WILLIAM HEADLAND, M.D., &c. 8vo. Fourth Edition, Revised and Enlarged. London: Churchill and Sons. 1867.

*Études sur Les Médications Arsenicale et Antimoniale et sur les Maladies du Cœur.* Par Le DOCTEUR LUCIEN PAPILLAUD (HENRI ALMÈS). Paris, 8vo. J. B. Baillière et Fils. 1867.

As regards the action of medicines, Dr. Headland has long been one of the men of the time; his work needs no introduction from us,

and therefore we shall not occupy the time of our readers with discussing its merits, which we all admit; but we shall offer some remarks on this, the fourth, edition, from the preface of which we make the following extract:—

“A considerable number of fresh observations and discoveries, some of them of considerable importance, and representing the labours of therapeutists of all nations during the last seven years, have been noticed in their proper place in the present volume.

“A part of the scheme of this work which has been much criticised will be established by the confirmation of a discovery which has been lately announced, that quinine, or a substance resembling it, is natural to the blood.

“The molecular theory of the action of nerve medicines, put forward with some hesitation by the author of the essay, has also received much corroboration from recent researches.”

Turning over to page 150, we find something worthy of special note in reply to the question, as to that class of Hæmatics of which quinine is the type:—“*Are they naturally present in the blood, or is there in healthy blood any substances which resemble them?*” It may be stated, with reference to this question, that since the appearance of Dr. Headland's original essay in 1852, various critics found fault with him, not so much for his having placed vegetable tonics in the class of blood medicines; but for his confidence in having grouped them in the first division, Restoratives, rather than in the second. He admits that these criticisms were made “perhaps not altogether without reason;” and he explains the opinion so treated somewhat after this fashion:—Taking quinine as the type, he observed that its action was permanent, and that it had no direct influence on the nerves. Having also noted two facts: 1. That the quinine taken was not wholly eliminated from the body; and 2. That it had no toxic action of its own on the blood; he decided to place that medicine, and the whole group at the head of which it stands, in the division of Restoratives, rather than among the Catalytics. However, what he terms “the most important part of the demonstration,” was still wanting. In order that the Tonic should act as a Restorative, it must supply the place of something normally present in the healthy blood. Until recently there was no proof of the presence in the natural blood of man or animals of any substance similar to quinine. But Dr. Dupré and Dr. Bence Jones, in experimenting as to the feasibility of discovering quinine, by the

“fluorescent” test of Stokes, in the blood of a guinea-pig (to which it had been administered), found not only that they could so discover it, but they also obtained the same reactions with the blood of another guinea-pig which had not taken quinine at all. From this it follows, in Dr. Headland’s opinion, that quinine, or some substance chemically identical with it, is contained naturally in the blood and tissues of this animal; and, he continues, “as whatever is present in the blood of rodents must be present in that of man, quinine, or some substance chemically resembling it, occurs in human blood.” He then proceeds to remark that the matter is of very great importance to his argument, and “in order that there may be no mistake about it” he subjoins the following account of this “remarkable discovery,” as given by Dr. Jones himself in a lecture at the Royal Institution, in April, 1866:—

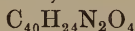
“No imagination could have anticipated that the line of research into the rate of passage of substances into and out of the textures would lead to the supposition that man and all animals possess, in every part of the body, the most characteristic peculiarity of the bark of the cinchona trees of Peru. After determining the rate of passage of lithia and other mineral matters into and out of the body, Dr. Dupré and I proceeded to endeavour to trace the rate of passage of quinine into and out of the textures of animals. We chose quinine because of that splendid test which led Professor Stokes to the discovery of the change of refrangibility of light.

“A guinea-pig was given quinine, and for comparison another guinea-pig was killed at the same time, having had no quinine. In the pig that had taken quinine, each organ was heated in a water-bath, with very dilute sulphuric acid. This extraction was repeated over and over again. The acid extracts were mixed and filtered after cooling, neutralized with caustic soda, and repeatedly shaken up with their own bulk of ether. The residue left after evaporation of the ether, was taken up by dilute sulphuric acid, filtered and tested for fluorescence. The pig that had taken no quinine had each organ treated in a precisely similar way. To our great disappointment, at first, we found not only had the pig that had taken the quinine a fluorescent substance in the textures, but that an almost exactly similar substance was extracted from the organs of the pig that had taken no quinine. Every texture was examined, and in every one this fluorescent substance occurred. We then endeavoured in every possible way to find a means of separating the natural from the induced fluorescence. And as every method failed, and we were compelled to recognize the close similarity of the substance that exists in the textures to quinine itself, we for a time dropped the original



inquiry, and proceeded to a more complete investigation of the natural fluorescent substance in animals.

“Having obtained solutions, we were able to compare them with solutions of quinine in their actions on the spectrum. And first, the solution of the natural substance begins to fluoresce a little before the solution of quinine; but on carrying it on through the spectrum it ends where quinine ends. The fluorescent light of the natural substance is a little more greenish than the fluorescent light of quinine. If a quartz cell containing this fluid is interposed between the source of light and a solution of quinine, no fluorescence takes place in the quinine; and if quinine is interposed between the light and this natural solution, scarcely any fluorescence is observed in it. When a solution of salt is added to the naturally fluorescing substance, it is almost entirely destroyed, as happens with quinine. If the natural solution is boiled with permanganate of potass, it does not lose its fluorescence, nor does quinine; but when permanganate with excess of alkali acts upon this substance or upon quinine, the fluorescent substance is entirely oxidized. Hence this substance, by the mode of its extraction, and by its remarkable action on light, is very closely related to quinine; and this led us to apply the chemical tests for quinine to this natural fluorescent substance, after extraction from the body. The different tests for alkaloids like quinine, as morphia, strychnine, veratrine, atropine, are as follows:—First, quinine gives a precipitate with iodine in iodide of potassium. Secondly, iodide of mercury in iodide of potassium also gives a precipitate. Thirdly, phospho-molybdic acid also gives a precipitate. Fourthly, bichloride of platinum gives a precipitate. Lastly, terchloride of gold causes a precipitate, and this precipitate is soluble in alcohol. Now each and all these different reactions are obtained with these same reagents acting on the fluorescent substance that is extracted from animals. So that here again we have chemical proof that this substance is an alkaloid, and that it is closely related to quinine. We have named it *Animal Quinoidine* because we have not as yet been able to crystallize it nor to obtain enough for analysis. . . . . Our so-called animal quinoidine is descended from albumen, and its ultimate progeny are carbonate of ammonia and water, out of which substances the cinchona-tree, under favourable circumstances, is able to build up quinine,—



“From the large number of carbon atoms in quinine, it may be regarded as one of the early substances produced in the downward passage of albumen, and from this we shall very probably find the key to the question how quinine acts in the body.”

Although forming part of the original essay, we may, even now, direct our readers to page 285, where some most sensible remarks

are made on the use of tea and coffee as common articles of diet: "They are, in fact, almost indispensable to the daily existence of civilized man, with whom a continual energy of mind is a necessary of life."

On page 338 Dr. Headland thus remarks on a recently agitated question; and we fully endorse his views:—

"Because diarrhœa is under the influence of purgative medicines, it has been proposed to rely upon them in the treatment of Asiatic Cholera. Dr. George Johnson has thus used Castor-oil in the treatment of this terrible disorder. Calomel in purgative doses, Croton-oil, and other Cathartics, have been given by others. In 1866 this principle of treatment was fairly and patiently tried by a large number of physicians, but with no better success than other pretended plans of cure. It is no doubt true that the colliquative purging of cholera depends upon the existence of something which has to be eliminated from the blood; but this need of elimination is not the essence of the disease, any more than it is of Typhoid or Gastric Fever. Castor-oil will not cure these disorders, nor will it cure Cholera. No purgative medicine can have power to arrest this wholesale transformation of the blood into 'rice-water' discharges. The contrary is the case with diarrhœa of the ordinary kind. It only needs the setting-up of a healthy eliminative process. It is this erroneous parallel between Cholera and Diarrhœa which has led physicians into this error. Cholera is a disease *per se*, and only accidentally connected with diarrhœa. I am inclined to think that the 'premonitory diarrhœa' so much spoken of is in many cases imaginary, in others greatly exaggerated—that the cases of this affection which are cured are mere ordinary diarrhœas occurring during an epidemic of Cholera. Cholera is an epidemic disorder, produced by a specific poison which may be carried in water, and is contagious, probably, through the medium of water thus contaminated. It is a disorder which runs a certain course, and goes through several stages if the patient lives long enough. It produces a remarkable depression of the nervous system, sometimes altogether disconnected from the bowel affection. This, and the arrested oxidation of the blood, and the suppression of urine, are symptoms quite as dangerous to the patient as the alvine flux. If we cannot cure Cholera by eliminatives, neither, as it seems to me, can we hope to cure it by astringents. It is time that we had left off talking of cures for Cholera. When a patient has taken Scarlatina or Small-pox, we know that the disease must run its course, and that we cannot arrest it. It is the same with Cholera. We can only treat symptoms, we cannot check the disease, which must go on to the end like so many other morbid fermentations."

Dr. Headland expresses no opinion as to the merits of Dr. Dobell's widely advertised Pancreatic Emulsion. He mentions it, in the section on Cod-liver Oil, in the following terms (page 362):—

“Dr. S. Dobell has employed beef-fat and lard-oil made into an emulsion with the pancreatic juice of the pig, as substitutes for cod-oil. He considers his pancreatic emulsion superior to ol. morrhue in most phthysical cases.”

On another question, which went the round of the medical journals some time ago, we make no apology for giving Dr. Headland's *ipsissima verba* from page 400:—

“An account of the therapeutical actions of arsenic would be incomplete if it did not include some notice of the extraordinary fact which now appears to be established, of the tolerance of large doses of this drug by persons who have become by degrees habituated to it. We are familiar with this phenomenon of tolerance in the case of nerve-medicines; with blood-medicines it is so rare that we should decline to believe in it until convinced by overwhelming evidence. I have long been aware of the fact that larger and larger doses of this poisonous mineral are borne with impunity by patients who have been for some time under treatment for cutaneous and convulsive affections. A case has been brought under my notice by Mr. Milton, in which as much as 400 drops of Liquor Arsenicalis were taken in a week without injurious consequences. Facts like these prepare us to accept, without dispute, the stories of Arsenic-drinkers and Arsenic-eaters in this and other countries, which for so long a time were scouted as apocryphal by scientific men. Dr. Davy and Mr. Church tell us that water containing an appreciable proportion of arsenic (·064 grains in a gallon) is used with perfect impunity for drinking purposes by the inhabitants of Whitbeck, in Cumberland. (*Edin. Phil. Journal*, and *Lancet*, July, 1863.) Long ago, an Austrian physician, Von Tschudi, assured us that arsenic was eaten in considerable quantities by the peasants in the mining districts of Lower Styria, and was in favour among them as a means of improving their complexions. The statement, reiterated in various popular works, was alluded to as incredible by the great majority of writers on toxicology, and on the action of medicines. Dr. Taylor (*On Poisons*) pronounced the story ‘absurd.’ Dr. Lorenz of Salzburg, has, however, corroborated the tale of Von Tschudi, in forwarding to Mr. Heisch, of London, in 1860, some positive evidence obtained from the directors of the arsenic works in Styria. Dr. Maclagan, of Edinburgh, and Dr. Rutter, determined to set the question at rest, visited Styria, in the spring of 1865. They were enabled to verify the fact that large doses of arsenic (arsenious acid and the sulphuret) were taken habitually and with impunity by natives of

that country. One man was observed to take about five grains, another six grains, of white arsenic at a dose. (*Edin. Med. Journal*, April, 1865.) Dr. Hardy doubts whether more than a small portion of the arsenic thus taken in the solid form can be absorbed into the blood. But one grain of white arsenic is a poison to most men. So that, until these positive statements, made in several quarters, can be satisfactorily accounted for or confuted, this phenomenon of the tolerance of arsenic must be admitted as a fact."

We must say that we coincide entirely in Dr. Headland's views respecting the use of alcohol. Much of what appears on this subject in the present edition appeared in the original essay; but here we find some alterations chiefly in the way of addition. He stands up for the soundness of the principle of the view taken by that late eminent physician, Dr. Todd; admitting, as we freely admit, that he may have pushed somewhat too far his advocacy of alcoholic stimulants in acute diseases. Nevertheless, Dr. Headland considers that Dr. Todd's error, "if error it was," was *in the right direction*, "as there is far less danger of doing mischief by stimulants than by depressants." On the question—is alcohol a calorific agent, or is it not?—Dr. Headland's opinion is not definite! It "lies mid-way" between the opposite conclusions of Liebig, Vierordt, Prout, Snow, Smith, Lallemand, Perrin, and Duroy; all of which he mentions and discusses. "Alcohol, taken in moderate quantities, is burnt in the blood. When in excessive amount, a part of it remains undecomposed in the blood, and is excreted unchanged." If space permitted, we should enter on a discussion of the best and most important part of the whole book; the section on opium, extending from pages 417 to 431. We specially commend this section to the notice of our readers. It not only treats of opium in its every phase, as it concerns man, but also as it concerns some of the lower animals. It seems that large quantities are required to poison rabbits and other rodents; while apes are completely poison-proof so far as opium is concerned. Flandin administered to one 500 grains without effect; and Dr. Headland accounts for this immunity by the fact of its rapid elimination in the urine. He considers the pernicious practice of opium-eating much increased in England, particularly among the operatives in the manufacturing districts; and he also mentions its existence among the field labourers in Lincolnshire; observing, at the same time, that "Government has not interfered, and will not interfere to stop this. Most wisely has the sale of arsenic been



restricted by law. But any one may buy opium. The recorded deaths from suicide and murder, which result from its unrestricted sale, are increasing in a frightful ratio." In these days of sanitary reform, and hygiene, and loud talk about good water, and pure air, we heartily wish that some influential political agitator would turn his abilities to real usefulness, and teach our senators wisdom in this matter, which so loudly and justly calls for immediate reform.

*Papillaud.*—In the preface of this tractate, which is dated 18th July, 1867, from Saujon (Charente-Inférieure), M. Papillaud very sensibly remarks that while priority of invention is a much cherished distinction, yet that it has serious inconveniences for the discovery as well as for the inventor. It must encounter the hostility of some, and the indifference of others; while a new idea has occasionally been looked on as "une personnalité à l'adresse de ceux qui ne l'ont pas eue." On these accounts, M. Papillaud disclaims priority as regards this treatise, but avows his present production to be the result of solid work of his own, nevertheless. The first portion of the book treats "De Medication Arsenicale;" and may be referred to as containing all that has been advanced and need be known about it. The discoveries of others are carefully marked, and due credit is given to every labourer in the arsenical vineyard. It opens with an abstract of the opinions of Boudin in 1840; and thus speaks of the origin of Trousseau's arsenical cigarettes:—

"Pendant cette année, 1841, le professeur Trousseau essaya l'arsenic contre la phthisie et le catarrhe pulmonaire. Il le donna à l'intérieur et l'employa aussi en cigarettes pour en faire respirer la vapeur. Ces indications étaient fondées sur un passage de Dioscoride, qui préconise l'arsenic pour les malades qui ont du pus dans la poitrine et pour les asthmatiques, indiquant comme mode d'administration interne son mélange avec du miel et des substances résineuses. Son alliance à des vapeurs résineuses est également mentionnée par Dioscoride, et le professeur Trousseau se conforma à ces indications en faisant imprégner de baume de Tolu ses cigarettes arsenicales. Cette medication procura du soulagement à ceux qui y furent soumis, mais ne donna pas de guérisons."

Full mention is made of almost every name known to the profession in connexion with this subject; and this part of the treatise winds up with his own views, a portion of which appear in the following extract from page 19, and we insert it, not only

for this reason, but also because of its reference to the Styrian arsenic eaters, of which we have spoken above when discussing Dr. Headland's work:—

“Depuis la publication du mémoire du docteur Tschudi sur l'emploi vulgaire de l'arsenic comme médicament hygiénique parmi les populations de la Styrie, du Tyrol et de quelques autres contrées de l'Allemagne, une certaine curiosité s'est emparée du public à l'égard de cette substance. On a voulu en France se donner, comme les Allemands de la basse Autriche, la fraîcheur du coloris et l'éclat des yeux au moyen des préparations arsenicales, et non-seulement ce médicament a refait le teint mais encore les forces et l'embonpoint, il a régularisé la respiration et la circulation, répandu le bien-être et l'harmonie dans l'organisme, en un mot il est devenu un reconstituant. C'est sous ce dernier rapport qu'il a été considéré, étudié et expérimenté dans ces dernières années par les docteurs Isnard et Walu, dont les récents travaux ont définitivement tiré l'arsenic de l'ornière de l'anti-périodicité dans laquelle il était resté embourbé pendant si longtemps. Aujourd'hui toute dissertation sur sa vertu fébrifuge serait une redite; sur ce point la discussion est épuisée, la lumière est faite et le débat est clos. La propriété de guérir la fièvre intermittente est une des moindres qualités de l'arsenic; c'est comme médicament d'un usage presque général et s'appliquant au plus grand nombre des maladies qu'il doit être considéré maintenant. En effet, sa qualité de reconstituant ne pose-t-elle pas son indication en regard de presque tous les cas pathologiques? L'action de la maladie n'est-elle pas une action déconstituante et le rôle du remède n'est-il pas de refaire ce que la maladie a défait ou de maintenir ce qu'elle tend à désorganiser?

“La medication arsenicale est indiquée, selon nous, dans tous les cas où il est opportun de relever les forces et de régulariser les fonctions quelle que soit d'ailleurs la nature de la maladie qui amené cette indication. L'action réparatrice de l'arsenic trouve aussi bien sa place à la suite de l'affaiblissement causé par une pneumonie qu'à la suite de l'anémie produite par une fièvre paludéenne. C'est un médicament polychreste par excellence.”

The section “De la Medication Antimoniale” is much shorter than the preceding, but it is not inferior to it in any other respect; “Parallèle entre L'Arsenic et L'Antimoine.” M. Papilaud is of opinion that antimony and arsenic possess an analogous action against those affections which are characterized by a functional perversion of innervation, as, for example, chorea, delirium tremens, hysteria, and others. Hence, he concludes, “cette action des ces médicaments est *régulatrice de l'innervation*.”

The next section treats “Des Maladies du Cœur;” and we pass on from it to the last section, which is headed “Application des Medications Arsenicale et Arsénio—Antimoniale aux Maladies du Cœur.”

This part mainly consists of cases of various heart affections, some organic, some functional, but mostly treated on his plans of combining the two remedies, of supplementing one by the other, of alternating them, and of giving instead of one or both the salt called arseniate of antimony, which last he states in his “médicament usuel contre les maladies du cœur caracterises par les palpitations, la dilatation et l’hypertrophie.” His ordinary dose is two milligrammes daily. The salt is prepared in granules, of which two may be taken in the morning, and two in the evening.

M. Papilaud is well read on his subject, and very enthusiastic as to his success, which appears to have been considerable. We should like to have the experience of other observers as to their success in cases of these kinds treated in like fashion; but meanwhile, we must heartily commend M. Papilaud’s work, for it is a credit to our profession.

1. *Essentials of the Principles and Practice of Medicine. A Handy Book for Students and Practitioners.* By HENRY HARTSHORNE, M.D., Professor of Hygiene in the University of Pennsylvania. Philadelphia: Henry C. Lea. 1867. Pp. 417.

2. *Pathological Sketches.* By J. H. JAMES, F.R.C.S., &c. London: John Churchill & Sons. 1867. Pp. 102.

Dr. HARTSHORNE’S work very much resembles, both in its design and its arrangement, the wonderfully comprehensive little volume published some years ago by Dr. Tanner, as a Manual of the Practice of Medicine, the last edition of which has expanded into a bulky octavo. Dr. Hartshorne has, however, devoted a larger portion of his book to general pathology, and to a general consideration of the symptoms and signs of disease, and the principles of treatment; these subjects occupy the first 120 pages, the remainder being devoted to special pathology and practice. He gives us a succinct statement of the most recent doctrines in pathology, and a

discriminating account of the various methods of treating disease which have been adopted; he shows a thorough acquaintance with the literature of medicine, and with the actual difficulties of practice. It may be questioned how far the science and practice of medicine can be usefully brought before the mind, brought in such a manner as to leave a true impression, except at considerable length; but as far as this is possible, Dr. Hartshorne has done it, and to those who want a handy-book, and can usefully assimilate such concentrated information, we recommend it without hesitation. As a fair specimen of the book, and deserving of attention on account of the opportunities which American physicians have had of observing the disease we subjoin his article on diphtheria:—

#### “DIPHTHERIA.

“SYNONYMS.—*Pseudo-membranous Angina*; *Putrid Sore Throat*; *Diphtheritis*.

“HISTORY.—Though the name diphtheria (from *διφθερα*, a skin or membrane) was only given to this disease by Bretonneau of Tours about forty years ago, it appears to have been described by Aretæus of Cappadocia as a disease of Egypt; and was mentioned also by Macrobius and Cœlius Aurelianus among early writers. Hecker gives an account of its prevalence in Holland in 1337; Carnevale, at Naples, 1620; Tamayo, at Madrid, called it *garotillo*, in 1622. Ghisi first clearly described the pseudo-membranous formation, at Cremona, 1740. In France, Chomel saw it in 1743-9; in England, Fothergill, in 1754; Douglas of Boston, in this country, in 1736, and Samuel Bard, of New York, in 1771. Huxham, Cheyne, Rosen, Albers, and Guersent also described it under different titles. Bretonneau most fully made it out as a distinctive disease, in 1826. Since that time it has been recognized and treated of by nearly all medical authorities.

“Late epidemics of it have been, principally, those of Paris and Boulogne of 1855-7, passing to England in the latter year; and of our own country, beginning in California in 1856, and in the Eastern States a little later, gradually increasing in prevalence until 1860. Since that time it has declined in frequency, although still existing, and sometimes attended by great local fatality. Bretonneau, not unreasonably, supposes Washington and the Empress Josephine to have died of diphtheria. Stephanie, the beautiful queen of Portugal, and Valleix, the eminent French physician, were victims of it.

“VARIETIES.—1. Simple; 2. Croupous; 3. Ulcerative; 4. Malignant diphtheria.

“SYMPTOMS.—Premonitory, but not distinctive, are general *malaise*, slight sore throat, and swelling of the lymphatic glands behind the jaw.



Then, in the simple form, fever occurs: with headache, furred tongue, constipation, and difficulty of swallowing. On examination, a swollen and very red or purple appearance of the fauces will be observed, as well as of the palate and tonsils. Over one or both of the latter, there may be seen, often as early as the second or third day, a whitish or yellowish white membranous deposit. All the symptoms continue, in this form, from five to nine days; when, in favourable cases, convalescence follows.

“The croupous form has caused the greatest number of deaths, especially in children. This seems especially prone to follow measles or scarlatina. In it, after the same early symptoms as those above described, but sometimes violent from the beginning, increase of discomfort in the throat is complained of. Then an abundant yellow or brownish leathery exudation is found to cover the tonsils and fauces; which, under the exudation, are much swollen. Often quite early in the attack, the pseudo-membranous inflammation extends to the larynx. This is shown by the usual symptoms of croup; the barking cough and voice, and difficult inspiration, becoming whistling or sibilant when the obstruction to breathing is the greatest. A fatal termination may occur, by asphyxia, in a very few days. This can only be averted by the detachment and expulsion of the membrane, without its re-formation.

“The ulcerative variety is not common. When destruction of the palate and tonsils has attended it, with copious dark-coloured and pulpy exudation, and some extravasation of blood, it has been mistaken for, and described as, gangrene; whence the old name, ‘putrid sore throat.’ The occasional existence of true gangrene cannot be altogether denied.

“**MALIGNANT DIPHTHERIA.**—At the commencement of this, there is, with intense headache, not unfrequently *vomiting*, which is uncommon in the milder varieties, and hemorrhage from the nose, mouth, stomach, or rectum. Great dysphagia soon exists, and enormous engorgement of the sub-maxillary, parotid, and cervical glands. The tonsils, pharynx, and palate are covered thickly with a leathery deposit, at first yellowish, but soon becoming ash-coloured, brown, or almost black, and of an offensive odour. The tonsils may suppurate or even slough. The nostrils are also sometimes involved; being swollen, lined with false membrane, and emitting an acrid and fetid discharge. Extreme prostration comes on, at a more or less early period; it may be from the first day. The pulse becomes very rapid, the face lividly pale, morbid heat of the skin being followed by clammy coldness. Coma often precedes death. The latter may take place in three, four, or five, occasionally in one or two days; sometimes from the constitutional impression of the disorder, before the local affection has been fully developed.

“**SPECIAL SYMPTOMS AND COMPLICATIONS**—*Albuminuria* is present in most severe cases of diphtheria, from an early time in the attack. A diphtheritic affection of the *skin* has been now and then observed. A

blistered or otherwise abraded surface will usually, in the course of the disease, be covered by false membrane. *Pneumonia* is an occasional and dangerous complication.

“**SEQUELÆ.**—These are, especially, long-continued debility, paralysis of the soft palate, and general paralysis in various degrees. In the last of these, deglutition, articulation, vision, and locomotion may be involved. A fatal result may occur after a few weeks, or recovery after a longer period; sometimes from two to eight months.

“**MORBID ANATOMY.**—The pellicle or deposit, formed upon the highly injected and tumefied mucous membrane of the fauces and throat, constitutes the anatomical peculiarity of the disease. Minutely examined, the false membrane is found to vary from  $\frac{1}{20}$  to  $\frac{1}{8}$  of an inch in thickness, and to be fibro-laminated, *i.e.*, of layers of fibrinous net-work, including epithelial cells, and having on its free surface exudation corpuscles or ‘pyoid globules,’ and granules; these forms appearing to be only stages of degeneration. No process of organization or development occurs in the mass; it is aplastic. In some cases only a granular superficial infiltration of the mucous membrane is observed, without even distinct fibrillation.

“The common deposit of diphtheria differs from the false membrane of simple inflammatory croup, and still more from the ‘coagulable lymph’ of inflamed serous membranes, in being thicker, more tough, yellower, and less capable of anything like organization.<sup>a</sup> (Dr. B. Sanderson asserts that he discovered evidence of development of the exudation in one or two specimens of the simple form of diphtheria.)

“**PATHOLOGY.**—Excluding from the title of diphtheria all instances of accidental or merely inflammatory ‘diphtheritic’ or pseudo-membranous formations, as they occur, for example, in croup and scarlet fever, we must admit that there is a special zymotic or ‘enthetic’ disease, for which that name is appropriate, and should be reserved. It is a toxæmic or ‘dyscrasial’ affection, in which the morbid change in the blood has its main and characteristic local manifestations in the throat.

“**CAUSATION.**—Not doubting the existence of a special material cause yet unknown except by its effects, we can only say further that the disease is generally epidemic or endemic, with a special tendency to limited localization. It acts with intensity in confined centres; as, a small village, a crowded school, a numerous family; inflicting therein often a terrible loss in proportion to the members attacked; a sort of domestic pestilence.

<sup>a</sup> Bretonneau long since, and Dr. Sanderson a few years ago, imitated the diphtheritic exudation, by injecting oil of cantharides into the throats of animals. The principal difference was in the manifest tendency to organization in the cantharidal pseudo-membrane.

“Is diphtheria transmitted by contagion? I incline to believe that it sometimes is so, although clearly not dependent upon that mode of propagation in its epidemic migrations. The certain examples of its extending from one person to another are few; but I think I have known of one at least.

“Children are much more liable to diphtheria than adults. Climate and season do not seem to affect its prevalence. Nor does it show any very decided preference for otherwise unhealthy places, where filth or crowd-poison abounds. Even its promotive causation, then, seems to be at present less known than that of most other diseases.

“DIAGNOSIS.—From *scarlatina*, diphtheria is distinguished by the absence of the eruption, and of the peculiar punctated or brick-dust like flush of the throat, and ‘strawberry’ tongue. That scarlet fever *predisposes* to diphtheria, as a subsequent attack, is a well established and not unimportant fact.

“With *membranous croup*, it is contrasted in the following manner:—That disease is a sporadic and sthenic local phlegmasia, whose general symptoms are, as much as in any inflammation, dependent upon the local affection; while diphtheria is a constitutional disorder, usually epidemic, in which the local symptoms are secondary. More directly, in practice, we may mark the commencement of the pseudo-membranous deposit, in diphtheria, about the tonsils and pharynx; in croup, in the trachea or larynx. That of diphtheria rarely extends, in any case, below the larynx; that of croup, not unfrequently even into the bronchial tubes. After the laryngeal complication or extension has occurred in diphtheria, the croupal symptoms are really the same as those of any other laryngeal obstruction, and thus are not different from those of croup.

“From *thrush* and *aphthæ*, diphtheria is known by the deposit being much larger and thicker, never vesicular, and mostly duller in colour; and attended generally by more severe constitutional symptoms. Thrush begins in the mouth; it is, moreover, much more uncommon in adults than diphtheria; and is never epidemic.

“PROGNOSIS.—*Simple* diphtheria is not very dangerous to life. The croupal form is decidedly so; and the malignant is fatal in a large majority of cases. *Insidiousness* is a trait often belonging to the disease in children; a name which has been applied by some, for that reason, is ‘creeping croup.’

“TREATMENT.—No specific remedy having been discovered for this disease, we must be governed in our tentative treatment of it by our idea of its nature; while concluding upon its therapeutics, finally, through experience. Nothing, it may be confessed, is very satisfactory, as yet, in the management of bad cases of it. All agree that it is not a mere local inflammation, but a systemic affection primarily; and that its type is most generally asthenic. Much depletion is therefore not to be thought of. I



would never bleed from the arm in diphtheria. In simple, open cases, I have used leeches to the throat, with seeming decided advantage within the first three days; even their use, however, must be exceptional. Moderate purgation, as with citrate of magnesia, or Rochelle salt, at the very beginning, is well in the simple and croupal, though not in the malignant form.

"Chlorate of potassa is a favourite medicine with many in this disease. My best results in bad cases have attended its early and free use. An adult may take twenty grains in solution every three hours; I have given five grains every two hours to a child five or six years old.

"Tincture of chloride of iron is relied upon by some; from ten to twenty drops every three hours for an adult, with or without the chlorate of potassa. Sulphate of quinine is also given, alone, or at the same time with the above remedies, by a number of practitioners; say of quinine, for an adult, a grain every two or three hours.

"Besides these, or instead of them, for internal use, permanganate of potassa has, after some trial, the recommendation of one or two observers. A drachm of it may be dissolved in a pint and a half of water, a fluid-drachm of this being taken every hour. Sulphite of soda, ten grains every two or three hours, is worthy of trial in this, as in other zymotic diseases.

"Concentrated liquid food must, as a rule, be given throughout an attack of diphtheria; milk, beef-tea, and very often wine whey or brandy or whiskey punch; in small quantities at short intervals, according to the degree of prostration present.

"Local treatment is, by most physicians, regarded as very important. Experience has shown, I think, that it ought not to be violent. Ice in small pieces melted in the mouth slowly, is probably as useful as any application. Muriatic acid and honey, equal parts, applied freely with a large camel's hair pencil; or diluted with water and used as a gargle, I believe to be serviceable. Creasote dissolved in glycerin,<sup>a</sup> lime-water; chlorinated soda dissolved in twenty parts of water; and permanganate of potassa, a drachm in a pint, make also appropriate gargles. In a young child ice is often the only local application possible without a struggle so disturbing as to make the benefit of it doubtful. Cold water compresses may be applied outside of the throat in the early stage, while there is excess of heat. Later, flannel wrung out of hot water to which an equal amount of spirits or vinegar has been added, will give more comfort.

"Inhalation of the steam of lime-water is worthy of trial in diphtheria, especially in the croupous variety; or, the *atomization* of lime water by the *nephogene* or some other apparatus constructed for the purpose.

"But, I believe the local treatment to be, after all, secondary. And

<sup>a</sup> Creasote, 4 to 8 drops; glycerine and water, of each 2 fluid ounces.



especially is the effort (which I have seen practised) to remove the patches of exudation by force, as by excision or actual cauterization, to be deprecated, as likely to do harm rather than good."

At page 75 we notice a slight inaccuracy—"the heart's apex strikes during the impulse at a point just below, and outside of the left nipple." Now, as observation of the exact position of the apex often gives us valuable aid in the diagnosis of thoracic disease, our topography should be as correct as possible, and the true position of the apex-beat is in the fifth interspace, and somewhat against the sixth rib, midway between the left edge of the sternum and the nipple line.

Mr. James, the author of the second book on our list, has been for some forty years in practice in Exeter; his work consists of two parts; the first is devoted to the subject of inflammation, on which he wrote in 1821. He complains that pathologists have of late years been too much in the habit of concluding that the phenomena observed under the microscope, when transparent tissues were irritated for the purposes of experiment, are the phenomena of all inflammations. These he divides into the limited, the diffuse, inflammations with tendency to ulceration or mortification, and resolving inflammations. Speaking of sloughing sores, he recommends the application of equal parts of strong decoction of bark, and good port wine. Many, he says, seem to think that simple alcohol possesses all the virtues of good old port—not only does the stomach of an invalid, but the surface of an ulcer, know the difference. The second part of the volume treats of bleeding, and change of type; and on these points it is interesting to have the opinion of one actively engaged in professional duty for so long a period; the type of disease has changed, he says. On referring to his case books, he finds that soon after 1837 he began to bleed much less frequently, and he did so, not because of anything which had been written against bleeding, but because he ceased to meet with cases demanding it. Bleeding from the arm, he thinks, may still be useful in the diseases of a population who have not been reduced by the great town system; to be useful, however, he reminds us, bleeding must be practised at the beginning of the malady, and in such a manner, that the blood flows in a full stream. Discussing the change in the constitution of the people, he suggests that in addition to the bad air and bad habits which injure the population,

something is to be attributed to the present plan of feeding the animals designed for human food, in a manner which, though it produces bulk, does not produce healthy structure.

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*Handbook of the Sphygmograph: Being a Guide to its use in Clinical Research. To which is appended a Lecture, delivered at the Royal College of Physicians, on the 29th of March, 1867, on the Mode and Duration of the Contraction of the Heart in Health and Disease.* By BURDON SANDERSON, M.D., F.R.S., Physician to the Hospital for Consumption; Assistant Physician to the Middlesex Hospital; and Joint Lecturer on Physiology in the Middlesex Hospital Medical College. London. 1867. Pp. 83.

IN this country, at least, the sphygmograph has been introduced to the profession under very favourable auspices. Several able observers have devoted themselves to testing the utility of the instrument, and their reports have, from time to time, been published. The sphygmograph has, indeed, been exceptionally lucky in the treatment it has received, and if its use as an instrument of clinical research fails to become general, it will certainly be from no want of careful investigation. Our readers have already been presented with an analysis of the first English work on the subject, and have also had the opportunity of perusing Dr. Grimshaw's valuable researches on the peculiarities of the pulse trace in fevers. The appearance of Dr. Sanderson's little book, we accept as another token of the recognition of the great importance of applying to the solution of the complex problems of our science, every instrument which can render our knowledge more exact. In our observation of the phenomena of the circulation, the sphygmograph promises us a precision which the *tactus eruditus* of a great physician occasionally approached, but to which many veterans in our armies of the past never attained.

The handbook of the sphygmograph consists of three chapters, and the lecture referred to in the title. In his preface, the author says—"Those who require only a grammar of the sphygmograph will, I trust, find what they want in the first two chapters." In the third chapter we have "Notes on certain causes and complications of disorders of the circulation;" and "the more general questions

relating to the physiological pathology of the circulation which are connected with the movements of the heart and arteries, are discussed" in the lecture which is placed at the end of the volume.

In the first chapter, after the usual description of the instrument, there are sections treating of its defects, modifications, and the mode of application. We find that Dr. Sanderson, like other observers, has discarded the metallic wings, and recommends, for fixing the sphygmograph on the arm, that to the carpal end of the brass framework there should be adjusted "a rectangular block of brass, by the under surface of which it rests on the tendon of the *flexor longus pollicis*, and on the space between that tendon and the spine of the radius; the block being kept closely applied to the surface by means of a strong elastic band, which encircles the wrist. By this method the framework of the sphygmograph is made to rest firmly on a surface of bone, so that the axis of the lever is maintained at a constant distance from the artery." The movements of the forearm are controlled by the use of Mr. Berkley Hill's pad. Further on we have a description of the author's mode of regulating the pressure, but it is not so clear as it might be, and a diagram would be a great assistance in enabling the reader to follow the author's meaning. The uncertainty which attends the registration of the movements of the lever on paper, has led to the use of smoked glass. This substitution, which has been long used by many observers, renders the registration more certain, and yields more accurate results, for the point of the pen never fails to leave its trace; and, what is more important, the friction between the pen and the glass plate is reduced to a minimum. Wolff, in his numerous experiments, used smoked paper, on which the trace can be easily fixed by a little alcohol, or oil of turpentine. This plan is a very useful one, and we are surprised to find no mention made of it by one who has been so careful a student of Wolff's able treatise.<sup>a</sup> The trace can be easily fixed on glass by means of photographers' varnish; but, still the ink and paper, as used by many, is so much more convenient, and, with care, admits of being rendered so accurate, that we believe it will continue to be used by many.

The second chapter contains some useful remarks on the "terms usually employed in describing the character of the pulse, as felt at the wrist." These will well repay perusal, and show, in a striking manner, how useful the sphygmograph can be made, in imparting a

<sup>a</sup> *Charakteristik des Arterienpulses.* Leipzig. 1865.



knowledge of the varieties of the pulse. The description of the "Arterial movements which constitute the pulse," comes next, and it is in this part of the chapter, which it is most essential the student should thoroughly understand, that many difficulties will be found, arising from the author's defective arrangement of his materials. We would advise any who read this chapter, to do so only after a careful perusal of the lecture, wherein will be found some definition of the terms employed in describing the parts of each pulsation.

The obscurity which pervades the second chapter, is also due, in part, to the fact that Dr. Sanderson endeavours to introduce a new nomenclature of the parts of the pulse-trace, differing from both that of Marey and that of Wolff. It is much to be regretted that there should be a want of uniformity in the terms employed to designate the various curves of each pulsation, as the student of sphygmography must now learn each method before he can fully avail himself of the literature of the subject. To the reader of Marey, the technicalities employed in this little book are at first very perplexing, and although we must admit that this is, in part, due to the more correct views we now have of the successive phenomena which form each pulsation, yet it chiefly arises from the author's method of referring to the movements of the artery, instead of speaking of curves of the trace. We must deprecate this introduction of new technicalities, especially as the inventor of the sphygmograph has given us a much more simple nomenclature. As revolutions are most destructive to the prosperity of newly constituted states, so are unnecessary alterations in its language most fatal to a new method of inquiry.

The third chapter contains much useful information on the pulse-form in various disorders of the circulation—*Mitral valvular disease*, *Aortic valvular disease*, *Rheumatic carditis*, *Increased arterial resistance*, *Respiratory and pulsatile movements of the veins of the neck*, and the *Influence of consciousness on the circulation*, are each, in turn, briefly treated of. In speaking of mitral regurgitation, it is stated, "the *irregularity* met with in mitral disease, possesses a character not before noticed by writers, which affords a key both to its cause, and the only mode of remedying it. In the irregular pulse of mitral regurgitation, the contractions of the heart may be divided into two classes—those which are frequent, short, and ineffectual, and those which are long and forcible. And it is found by observation, that the former occur during inspiration, the latter during the respiratory pause." This is an important observation, but by no means so



original as the first part of the quotation would lead us to suppose; for on turning to Marey's great work we find, in a note to his observations on this subject, the following passage:—

“Il nous a semblé que, dans certains cas le rythme de la respiration influe sur le retour des irrégularités du pouls dans l'insuffisance mitrale.”<sup>a</sup>

We regret that this passage escaped Dr. Sanderson, to whom we must allow the credit of giving an explanation of the phenomena which the acute intellect of Marey anticipated. The following is our author's explanation of the rhythmical character of the irregularity of the pulse in mitral regurgitation:—

“The mechanical effect of inspiration, as I have elsewhere shown, is to augment the quantity of blood contained in the pulmonary circulation, and hence to increase the frequency of the contractions of the heart. This increased frequency depends on the distended state of the auricles, in consequence of which the ventricles fill more rapidly during their period of relaxation. In this way the length of the diastolic pause is diminished, and the hurried action of the heart satisfactorily accounted for; but the question still arises, why are the rapid beats which occur in inspiration, also ineffectual? Very probably because the mitral valve does not close; the heart being distended with blood, its walls are kept apart to such an extent, that the curtains do not meet. The ventricle contracts, but much of its blood is discharged into the auricle, to be returned to the ventricle as soon as its contraction is over. It is not until the effect of inspiration, in keeping the auricles full, ceases, that the curtains get near enough to allow the heart to make an effort sufficiently effectual to send a full tide of blood into the aorta, and thus relieve the distended pulmonary circulation.”<sup>b</sup>

Of the lecture, which forms the concluding portion of this small book, we need say little, as it has already appeared at length in the pages of a weekly contemporary. It is, in our opinion, by far the best part of the *brochure* before us, and if the matter it contains had been embodied in the second chapter, our author would have produced a most useful “handbook.” As it is, those who are already well acquainted with the use of the sphygmograph will find in this volume much to interest them.

<sup>a</sup> Physiologie Médicale de la circulation du Sang. Paris, 1863. Note on page 524.

<sup>b</sup> Croonian Lecture, 1867. Proceedings of Royal Society and Phil. Trans.

*Intestinal Obstruction.* By WILLIAM BRINTON, M.D., F.R.S.  
Edited by THOMAS BUZZARD, M.D., London.

THIS valuable little volume is virtually an extension of the Croonian Lectures delivered by Dr. Brinton before the College of Physicians, London, in the year 1859.

It claims attention, not only on account of the deserved celebrity of its lamented author, but also because of the very meagre description of this class of disease found in most of the works of medicine now extant.

It possesses also, in many points, the charm of originality. The views herein propounded as to the cause of the fecal vomiting observable in cases of intus-susception, and other obstructive diseases of the intestines, are wholly the conception of the author, and directly contravene those held from the day of Galen to the present; and it could not be thought superfluous to republish these lectures in a connected form, when we find that most of the text-books on practical medicine published during the twenty years which have elapsed since the ideas held by Dr. Brinton were first propounded, omit all notice of the doctrines which are here reiterated.

It should be borne in mind also that these are no mere deductions from, or compilation of, the work of others; but the result of the labour and untiring energy of an observer of disease, whose one aim was to search after truth.

The work consists of three chapters; the first, in the form of an introduction, contains a discussion as to the kinds of obstruction, after which a typical case is presented for our study, in which the symptom of fecal vomiting is selected for priority of consideration. The anti-persistaltic view is stated and refuted. Dr. Brinton's own explanation is put forward, and, to our satisfaction, established. The stages, and symptoms of each stage occupy the remainder of this chapter. The chief varieties of intestinal obstruction, their absolute and relative frequency, and their causes, form the subject of the second chapter; while the third is taken up by a minute consideration of the treatment to be adopted in these obscure and often dangerous cases.

Having thus given a short outline of the work, we shall proceed to consider it more in detail.

Obstruction to the transit of the contents of the intestinal tube, "may depend on two different, and, in some sense, contrasted

causes;" it may be due "to a failure of propulsive energy on the one hand, or to an excess of resistance to such energy on the other." It is evident that all those cases which arise from paralysis of the nerves which supply the intestinal muscle, as well as those depending on weakening, paralysis, or destruction of the muscles themselves may be included in the first category; while those cases producible by occlusion of the calibre of the tube from without, by impaction of the contents, by constriction or intussusception, are to be referred to the second class.

Dr. Brinton illustrates these several cases by reference to experimental physiology. If in one rabbit the œsophagus be tied; in another, it be completely cut across; while in a third, division of the pneumo-gastric nerves be effected; in all, the effect, differing somewhat in degree, will be the same—the accumulation of the food, when administered, immediately above the seat of the injury.

He objects to distinguish these two forms, by applying to the one, and withholding from the other, the epithet "mechanical," for the impediment due to a mere failure of contractile power, is quite as mechanical as any physical obstacle impacted in the bowel."

Having thus disposed of the preliminary discussion as to the applicability of the term to all forms of the disease, our author proceeds to the discussion of—(1.) The pathology of intestinal obstruction generally. (2.) Its chief varieties. And (3.) The principles of its treatment.

In dealing of the first portion of the subject, a typical case is sketched as follows:—

"A person, perhaps hitherto healthy, experiences a sudden constipation, attended with disproportionate uneasiness or flatulence, soon merging into pain and distension of the belly, with violent rolling movement of the intestines. The distension increasing, nausea and vomiting supervene; and, gradually becoming more frequent, end by rejecting, not merely any casual alimentary contents of the stomach, or the greenish, bilious, alkaline fluid commonly thrown up when this organ is unoccupied by food, but a fluid of greater opacity, colour, and consistence, with a distinctly fæcal odour. A further aggravation of these symptoms now conducts the malady to its termination. This, if fatal, is usually preceded, locally, by signs of paralysis, inflammation, or even rupture of the distended bowel, and, constitutionally, by exhaustion or collapse replacing a febrile reaction. In other cases, the obstacle being removed by Nature or Art (if by the former, rarely before life is in extreme danger), the symptoms subside with comparative celerity. The pain, distension, and vomiting cease;



the bowels are relieved by copious stools; and the patient (if not placed in further peril by any of those conditions incidental or consecutive to obstruction just hinted at) is rapidly restored to comparative health."

Of the symptoms here delineated, that of stercoraceous vomiting is selected for priority of consideration, on account of its pathognomonic character, and because its occurrence had been previously explained, even from the earliest periods in the history of medicine, by the doctrine of anti-peristalsis.

In fact most of the illustrious fathers of the profession stated this doctrine in the most dogmatic manner, as if its truth did not admit of doubt. Sydenham, for example, when treating of Iliac Passion, thus expresses himself:—"The peristaltic action of the bowels is reversed, so that purges and clysters are thrown up like emetics, and the feces of the bowel are passed through the mouth and throat." In treating of the bilious colic which prevailed from 1670-1672, he thus writes:—"This symptom (constipation) proceeded until its violence determined a total inversion of the peristaltic motion and ileus; then are cathartics transformed into emetics, and even enemata are carried upwards through the whole tract of the intestines, and expelled by the mouth, feces and all."

Even at the present day, the same view is taught in some text books; thus, in the second edition of Dr. Aitken's *Practice of Medicine*, published in 1863, and at page 924 of the second volume, "Ileus is a severe variety of colic, accompanied by vomiting (with or without constipation) which is often so obstinate that the action of the bowels is inverted, and fecal matter is thrown up by the mouth."

We shall offer no apology for laying before our readers a full analysis of our author's views on this question, and, in the first place, in refutation of the old theory, the following arguments are advanced:—

"1st. Although an anti-peristalsis is often affirmed in the writings of numerous authors, in not one instance has its occurrence been substantiated by observation.

"2nd. The results of vivisection in animals in whom artificial obstruction has been produced, are directly opposed to such a theory, inasmuch as the ordinary movements, far from being reversed, are much more violent than usual; the same may be verified by inspection and palpitation in the obstructed intestine in the human subject.

"3rd. Over-irritation at the seat of obstruction is said to be the cause



of the supposed anti-peristalsis, but this state exists in numerous cases of intestinal disease, where no such effect as fæcal vomiting is the result.

"4th. The necropsy of cases of obstruction positively refutes the notion of anti-peristalsis. The portion of the tube most distended is that at the seat of obstruction, and the intestine tapers from this towards the duodenum; the reverse ought to be the case if the supposed theory were true.

"5th. While the supposed anti-peristalsis might fairly be expected to extend, like the irritation causing it, beyond the occluded point, both observation and experiment show that, long after the occurrence of obstruction, the bowel at and below the occluded point often empties itself by propelling its contents in the normal direction. So that, on the theory of an anti-peristalsis, a single irritation applied to a given part of the bowel renders it the starting-point of two precisely opposite movements—one upwards towards the stomach, one downward towards the rectum. And while, as above noticed, the first of these supposed movements not only fails to empty the segment it starts from, but always permits its extreme distention; the last, on the contrary, often empties and contracts its corresponding segment of the intestine to a tube with a thick wall and a narrow calibre, like the stem of a tobacco pipe.

"6th. A comparison of the symptoms and appearances in some cases of obstruction affords a specific disproof of all anti-peristalsis above the occluded point. In spite of the persistence of fæcal vomiting, castor oil, crude mercury, and other substances easily identified, which have been taken into the stomach shortly before death, are shown by the necropsy to have traversed the whole intervening length of intestine, to be stopped only by their reaching the strangulation itself."

Having thus most thoroughly, we think, refuted the old doctrine, he proceeds to state the theory which he was led to form from observation and experiment, and here we shall give his own words:—

"The movement proper to the healthy intestine is a circular constriction or peristalsis, which, travelling slowly and intermittently down its muscular wall, propels its contents in a direction from the stomach towards the anus. And when any part of the intestine has its cavity obliterated by an immovable mechanical obstacle, its contents, propelled by such a peristalsis, are stopped at the obstructed point. Here they gradually accumulate, so as first to fill, and then to distend, a variable length of the canal, with a more or less liquid mass. But a peristalsis, engaging the wall of a closed tube filled with liquid, and falling short of obliterating its calibre, sets up two currents in that liquid: one at the surface or periphery of the tube, having the direction of the peristalsis itself, and one in

its centre or axis, having precisely the reverse course. Those particles of the liquid which are in contact with the inner surface of the tube are propelled onwards by the muscular contraction of its wall. And this propulsion is necessarily accompanied by a backward current in those particles which occupy the axis or centre of the canal."

Two diagrams are given pointing out the truth of these ideas by exhibiting the nature and direction of currents produced in an inflexible closed tube, filled with liquid, and fitted with a perforated septum, capable of moving freely along its interior. When the septum is moved towards the closed end of the tube two continuous currents are established—a peripheral of advance and a central of return—to and from its closed end respectively.

Circumstances, such as the flexible and elastic nature of the intestinal walls, the variable intensity, rapidity, and frequency of their muscular contractions, &c., may concur to interfere with the exactness of these two currents; which would also be modified by the degree of liquidity of the intestinal contents, and the distance of the seat of obstruction from the pylorus; by the dilatibility of the obstructed bowel; by the extent of paralysis which, sooner or later, is the result of distention; by the nature of the ingesta, and by the kind of treatment pursued. The fecal vomiting may then be explained as follows:—

"The appearance of these matters, and the subsequent necropsy, often conclusively show that they have traversed a certain length of intestine in a direction towards the stomach; that they have returned, for example, to this organ from an obstruction seated in the lowest part of the ileum, or even in the colon. This reflux is the result of the intestinal peristalsis; which, acting on an obstructed and distended bowel, not only effects the ordinary propulsion of its contents towards the obstacle, but also gives rise to what is, theoretically, a backward current in the liquids occupying the centre of the tube; practically, a *tendency* to such a current. However interfered with by other movements, abdominal or intestinal, this tendency has sufficient energy to effect a more or less intimate mixture of the intestinal contents; and to return some of them from the obstructed part, to a higher segment of the canal: generally, indeed, to the duodenum or stomach, whence they can be expelled by vomiting."

In addition to those circumstances mentioned above as capable of altering the date at which fecal vomiting follows obstruction, it will be found that where the lesion is situated beyond the ileo-cecal valve, it will be much more delayed, in proportion, than where the

obstruction is in the small intestines. This, Dr. Brinton proves to be due to the length of time necessary to distend the ileum and cecum so as to allow of the backward passage of feces by inducing that patulous state of the ileo-cecal aperture, which is its necessary preliminary condition.

Where the obstruction is far below the valve, the stercoraceous vomiting may even be delayed so long that death ensues before it can occur.

It may well be asked how did such a theory as anti-peristalsis hold its ground for so long? Why did it satisfy the minds of men like Good, Cullen, and Sydenham? We imagine it has arisen partly from the paucity of cases of fecal vomiting and partly from the plausibility of the theory. Its truth was never questioned, but was always assumed; and, supposing it to be true, it satisfactorily accounted for the symptom. Still we cannot but wonder that some deep thinkers were found to give credence to the astounding proposition, that in some cases of ileus, the enemata introduced into the rectum, were drawn up through the entire length of the intestinal canal and rejected by the mouth. We are compelled to attribute such mental obliquity to excessive credulity in relying on the statements of ignorant patients, who will often make the most absurd misrepresentation of facts in detailing their maladies.

The next point considered is the rapidity of death, and this is said to depend on the degree and rapidity with which the segments of the intestine, above the point of obstruction, become filled and distended, whether by inflammation, secretion, or ingestion.

Dr. Brinton makes a division of the ordinary course of intestinal obstruction into two stages. In the first stage, the disease continues in a modified state the normal action of the bowel; it is capable of cure, and is characterized by pain, distension, vomiting, and writhing peristalsis; in the second stage, the action of the bowel is arrested, and, most generally, annihilated, and this state of paralysis leads, in the majority of instances, to fatal enteritis or peritonitis. Among the phenomena of the first stage, the *distension* of the intestine is looked upon by Dr. Brinton in the light of a *physical sign*, "far more conclusive than any mere symptom, and which may be verified before they become prominent."

"Experience entitles me to assert, that the accumulation of intestinal contents immediately above the obstructed point may sometimes be detected, as a slight fulness to palpation, and a much more definite dulness



to percussion, where many of the other indications of obstruction are scarcely perceptible or even absent."

Now, while we are unwilling to detract from the importance of this sign, where it can be ascertained to exist, we are led to believe that too much reliance on its presence is an error in the opposite direction. We cannot agree with Dr. Brinton's views as to the almost equal value of physical diagnosis in the investigation of thoracic and abdominal diseases. There are too many modifying circumstances in the latter case which lessen the certainty and amount of the information obtainable. We lack the facilities for comparison, and we know that insuperable difficulties frequently arise from excessive thickness or irritability of the abdominal wall, or from tension, due to flatulent distension or over sensitiveness, which interfere seriously with palpation or percussion in this region. On the other hand, we do not wish for a moment to detract from the value of a careful manual examination of the abdomen, in many cases. When conducted with care it will frequently convey most valuable information, especially where by long experience considerable *tactus eruditus* has been acquired.

The other symptoms of the first stage are next considered. *Fluctuation* is regarded as being by no means an early symptom, nor one easily verified; the movements of the intestines (whence is derived the name *volvulus* often applied to these cases), are a valuable aid to diagnosis at an early period, and, if present, they can rarely be mistaken. Dr. Brinton states that even after the movements have ceased, the contour of the intestine may be marked out on the abdominal wall; but we believe that this may often be concealed by general distension. Of *pain* two kinds are distinguished; the one is shared by enteritis in common with obstruction; it is often the earliest symptom and is either sudden and violent or attains its maximum within a minute or two after the occurrence of obstruction.

"It is usually intense in intus-susception, and in the impaction of gall-stones; somewhat less marked in the obstruction produced by twisting of the bowel, or by bands and adhesions; scanty in the obstruction of stricture; and almost absent in the obstruction caused by the impaction of fæces in the large intestine."

A curious explanation is offered of this kind of pain. It is said to be due to the distension of the minute vessels of the part, produced by the obstructing cause, through the medium of the



sympathetic nerve. We imagine that this might also be offered as a very rational explanation of the pain, often so intense, observed in many of those cases of cerebro-spinal blood poisoning which have occurred during the last two years. The other species of pain is more frequent and characteristic; it is the pain of intestinal distension which it immediately follows, and to which it is directly proportionate in degree; it is paroxysmal and has been compared, as to its mode of genesis, to cramp in the leg, but this is shown to be improbable, as the pain is often most intense when the distension is so great as to produce paralysis, and, on the whole, it is likely that this kind of pain owes its origin to a nervous, rather than a vascular source. The symptoms of the second stage—paralysis, inflammation, and collapse, are then passed under review; but as our author's views are those commonly held, we shall pass on to a brief consideration of the varieties of obstruction which is the subject of the second chapter.

From the analysis of 12,000 necropsies it is concluded that obstruction (exclusive of hernia) is the cause of death in 1 in every 280 cases of death from all diseases.

The relative frequency of the different varieties of obstruction is determined from an examination of about 600 deaths from causes verified by autopsies, viz.:—

“Intus-susceptions or invaginations, 43 per cent.; obstructions by bands, adhesions, diverticula, or peritoneum, external to the bowel,  $31\frac{1}{2}$  per cent.; strictures (including a few tumours) involving the intestinal wall,  $17\frac{1}{2}$  per cent.; torsion of the bowel on its axis, 8 per cent.”

Of these, intus-susception, being the most frequent, is first discussed; they are believed to be, in the vast majority of cases, protrusions of an upper into a lower segment of bowel, and also single; “both in the sense that only one is present in the whole canal, and that, in this one, the inner and outer segments are continuous by a single intervening portion.

Dr. Brinton expresses his scepticism as to the actual occurrence of backward intus-susception as follows:—

“Without at all venturing to assert that a backward intus-susception is impossible, I feel bound to record the general impressions derived from unusually large experience as a teacher of anatomy, on the one hand, and special research into this very point on the other, by saying that any one will supply an important pathological detail who will dissect out *in situ*, and adduce, with proper confirmative evidence from a professed anatomist,

a single case of backward intus-susception, as usually understood. At present, the occurrence of any such lesion is certainly not affirmed by evidences more numerous or more trustworthy than those which, to the complete satisfaction of many highly educated and intelligent witnesses, affirm the existence of sea-serpents, or assert the perpetual subjection of the disembodied spirits of saints and sages, to the curiosity and greed respectively of some of the most foolish and unscrupulous of mankind."

Can it be possible that our author was not familiar with the case brought forward by the late Professor Harrison, and published in the *Dublin Quarterly Journal* for August, 1848. In this case a portion of the descending colon protruded upwards into the transverse portion to the extent of about an inch and a half. The preparation may be seen in the Anatomical Museum of Trinity College, and an inspection of it will speedily convince the sceptic of the possibility of backward intus-susception.

In the great majority of cases (56 per cent.) the ileum and cecum are protruded into the succeeding large intestine; in 32 per cent. the small intestine is affected, and of these, in 25 per cent., the lesion is located in the ileum; in about 12 per cent. the colon is exclusively affected, while the rectum merely forms the outer layer of protrusions from above.

For an account of the varieties of intus-susceptions which arise from differences in the exact seat of the lesion, and for the circumstances which combine to render the obstruction in most cases complete, we must refer our readers to the original; suffice it to say, that it is, in a great degree, owing to the vascular congestion, swelling, and exudation which follow the primary lesion.

In those cases which proceed to a favourable termination, the result is brought about somewhat as follows:—In the ring of adhesive lymph which forms around the upper boundary of the inverted portion of the bowel, two circular lines of demarcation are formed, and by ulceration, or sloughing, or both, the invaginated portion of bowel is cast loose, and is finally expelled per anum. The ring of lymph completes the channel and prevents effusion of the contents of the bowel. This process is, on an average, complete in about eight days; it occurs  $2\frac{1}{3}$  as often in the invagination of the small intestine, as in the ileo-cecal variety; and, while in the former instance, recovery is the rule, in the latter more than one-third of the cases are rapidly fatal; its attendant risks are thus enumerated:—

“Inflammation, and all its modifications, take even more than their wonted share in this variety of obstruction. Ulceration, gangrene, and rupture of the distended segment immediately above the invagination are thus brought about. Peritonitis runs rapidly to diffuse suppuration; or, more slowly, forms an abscess (as on the psoas or iliacus muscle), ultimately fatal. Adhesion of the external lymph conditionates some future strangulation; contraction of the cicatrix ends in stricture and obstruction; accumulation of hard indigestible food, or violent exertion, bursts the soft adventitious tube, replacing the expelled bowel, and lights up fatal general peritonitis. Or lastly, the patient sinks gradually into a state of exhaustion, too complex to analyse, but probably sometimes referable in part to the loss of secreting and absorbing intestinal surface.”

The mechanism of intus-susception is thus stated:—

“The immediate cause of the displacement must be sought, not only in an abnormal violence, extent, and abruptness of that contraction of the transverse muscular layer, which is one element of peristaltic movement, but in a deficiency of that co-ordinate contraction of the longitudinal fibres which is an equally important (though less energetic) constituent of healthy peristalsis. The sudden and forcible constriction of a considerable length of bowel—fixed, as it were, behind, by the hitherto unrelaxed contraction from which it has extended, and bounded in front by a relaxed flaccid bowel (unstretched by the due contraction of its longitudinal fibres) must, as it suddenly diminishes the width of the segment it involves, simultaneously increase its length, and thus push a variable portion of it into the succeeding dilated segment. This explanation, which seems to be a simple and incontrovertible application of the laws of intestinal movement to the facts of intus-susception, refers the lesion to two causes—an active and a passive; one which thrusts the bowel forwards into the next segment, and one which permits this segment to receive it.”

The presence of the tumour is, of course, a most valuable sign in the diagnosis of this variety of obstruction, and should always be most carefully sought for in any case where constipation is unusually obstinate.

Intus-susceptions involving the ileo-cecal segment, or the colon may be distinguished from those affecting the ileum only.

1. By the prominence of tenesmus in the first class.
2. By the greater size and fixation of the tumour.
3. The scantiness of hemorrhage.
4. The subordinate share taken by obstruction.
5. The frequent presence of the end of the invagination in the rectum.

The suddenness of its invasion, the acuteness of its pain, the movements of the intestine, the presence of the peculiar tumour, and the rapidity of its prostrating effect, are so characteristic that there will be little difficulty in the diagnosis from enteritis, on the one hand, or from the remaining forms of obstruction on the other.

We quite concur in thinking that the quantity of urine voided does not indicate the proximity of the obstruction to the stomach, and we believe that it is no criterion of the exact seat of the lesion; on the contrary, we know that in many cases, not a drop of urine has been secreted, where *post mortem* examination demonstrated that the obstruction was situate in different segments of the upper bowel and even more than once in the colon. It was a marked symptom in Professor Harrison's case, to which we have drawn attention above, where the intus-susception was in the transverse and descending colon.

Among the other interesting matters which occupy the remainder of this chapter, we may mention that of obstruction due to large gall-stones ulcerating a passage into the duodenum, and becoming impacted in the small intestine, the diagnosis of which is fully detailed; also the importance of digital examination in the diagnosis of strictures, and the value of the precise amount of the injections of warm bland liquid, in coming to a conclusion as to the site of strictures or impacted masses in the large intestine. "A pint is said, in an ordinary case in an adult male, to indicate a point not lower than the upper end of the rectum; a pint and a half, two pints, three pints belong to corresponding segments of the sigmoid flexure. The descending and transverse colon, accept a larger but more irregular quantity of fluid."

This portion of the subject is concluded by a very valuable table of the statistics alluded to in this chapter.

The question of treatment opens up an important field for discussion, and in this part of the subject the author has done good service to the much neglected, but, as it seems to us, vitally important science of therapeutics. He rightly maintains that any treatment to be successful must be founded on correct pathology and accurate diagnosis. We shall quote his words:—

"Not only would it be difficult to mention any group of maladies which better illustrates the unity of the Science and the Art of Medicine; but I would add, as the key to the following remarks, that scientific insight, and accurate and early diagnosis, have a specific if not unusual



value in respect to both branches of treatment. If the process of mechanical obstruction cannot be distinguished from that of enteritis, the Physician may search in vain for principles to guide his administration of food or remedies. And if one form of obstruction cannot be distinguished from another, the Surgeon can scarcely venture to operate with any reasonable chance of success."

Is gastrotomy justifiable in intestinal obstruction? This question is answered with a decided negative, when considered as a general question, upon grounds which must commend themselves to every unprejudiced mind; for its necessity must be demonstrated by a comparison of its results with those of the disease when not so treated; but this is impossible, as we have no reliable statistics as to the mortality, either in obstruction or in gastrotomy.

But if it be asked should not the operation be performed in a particular case, an affirmative may be given, for there are cases so desperate that this will afford the only chance of life, consequently the operation may be undertaken at a period of the malady when it will prove less dangerous. An example of the truth of this proposition is quoted in the case of Amussat's operation for artificial anus, and its great degree of success is attributed partly to the fact that the peritoneum is not wounded, but chiefly to the greater certainty of diagnosis in those cases to which this treatment is applicable. We attach even less importance to the first of these causes, as we think that there is abundant evidence that with proper precautions there is little, if any danger, in a clean incision through the peritoneum.

It being granted that there are suitable cases for the operation, it remains for discussion what are those cases, and what are the indications for its use. That it is not adapted to *intus-susception* is proved by reference to the facts recorded in the second chapter as to the frequency of its favourable termination, and by the consideration that the origin of a fatal issue in these cases is often the result of inflammation and exudation, which the operation could never remove, even if performed at an early period. Those cases arising from *strictures* and *tumours* are proved to be more adapted to Amussat's operation, which is palliative, yet safe and easy. In obstruction due to constipation or impaction of gall-stones, the patient's chance of recovery can never be increased, and, it may be, diminished by an operation.

Where, however, the impediment to the transit of the intestinal contents is due to "a band of organized lymph, an adhesion,

a diverticulum, a rent in the mesentery, a malformation of peritoneum, or a twisting of the tube," an operation may be undertaken because the obstruction, in its earlier stages, may be completely removed, and is incapable of spontaneous cure; but although an operation is justifiable it is not the exclusive remedy for this class of cases. Age, debility, previous or present peritonitis or inflammation of the obstructed bowel, would be strong contra-indications. If when the operation be undertaken a stricture be found instead of a band of lymph, it is proposed to establish a communication between the bowel above and below the obstruction, using a ligature of catgut or wire.

The object of all rational *medical treatment* in obstruction must be the protraction by every means in our power of those pathological processes which are its result. As we have before stated, Dr. Brinton proves that the fatality of obstruction depends directly, *ceteris paribus*, on the amount and rapidity of the distension, which is its necessary result. The steps that nature takes for overcoming the obstruction are, greatly increased peristalsis and consequent dilatation, and if these be properly moderated, and their injurious effects prevented, we may often fairly expect a favourable issue. In fact, the primary indication here, as in so many other instances which come under the notice of the physician, is to apply in the treatment that great principle of rest, which has been so successfully used in the treatment of surgical diseases, and the paramount importance of which has been so triumphantly asserted by Dr. Hilton. It is just as impossible for the natural processes of cure, in a case of intus-susception—adhesion, organization, and ulceration or sloughing—to pursue a favourable course where violent peristalsis and excessive distension tend to separate the segments of bowels as it is for a fracture to unite or a sprain to recover if the muscles of the injured part be not kept at perfect rest. Distension leads to paralysis of the portion of the bowel engaged, if it be rapid and excessive, while the same distension, when protracted and diminished in violence, may not only stave off death, but even mediate a complete recovery. Coaptation of the healthy segments of bowel adjoining the site of an intus-susception, are quite as necessary to its cure as is proximity of the broken ends of a bone to their union. Clinical experience furnishes another strong argument in favour of this principle of treatment, for it is almost invariably the chronic and protracted cases which recover.

“In accordance with the foregoing rational principle, the following

seem the chief indications of treatment:—to prevent distension; to assuage pain; to mitigate excessive peristalsis; and to support the patient's strength during what is necessarily an exhausting, and often a long illness."

It is proposed to attain the first and last of these objects by the following means:—

"The avoidance of distension is to be attempted by reducing, in every available way, the quantity of food and drink, restricting the latter (so far as the often excessive thirst of the patient will allow) to small but frequent sips of cool (or even iced) liquids, and administering the former (in the shape of strong beef-tea, soup, or milk) with almost equal frequency and caution. With such articles, we may usefully alternate small doses of alcohol; preferably in the form of brandy, with water or even soda-water. But inasmuch as the distension practically measures, not merely the danger, but the probable rapidity, of the case, the repugnance of the patient, or the instantaneous vomiting which these articles of food and stimulus often excite, must be met by a corresponding reduction in their doses. And it must often be a matter of great nicety to judge what is the proportionate urgency of these two antagonist suggestions for and against support, or how far one is to be subordinated to the other."

The mode of bringing about the other two objects—the alleviation of pain and the diminution of peristalsis, proposed by Dr. Brinton, is by no means novel: it was adopted at a very early period in the history of medicine by men who, although they confessed to its partial usefulness in many cases, yet they combined it in most cases with treatment which frequently nullified its good results. We find mention of the use of narcotics in these cases in the works of Aretæus Paulus, of Ægineta, &c.; and Sydenham especially dwells upon the usefulness of the liquid laudanum where purgatives could not be borne. The same principle suggested to Graves and Stokes the use of opium in enteritis and ulcer.

In selecting that narcotic which would be most suitable in most cases of obstruction, our author has proved himself to have been possessed of an intimate acquaintance with the physiological effects of drugs, without which we believe all his diagnostic skill and pathological research would have been comparatively useless when applied to treatment, and we regret that there are so many who excel in the former branches of medical science, yet fail in that branch of knowledge which has the most direct bearing on medicine considered as an art, and who even openly express their



scepticism as to the value of drugs in the alleviation or cure of disease. We consider that it is as little reproach to the physician that he cannot cure a cancer of the liver by drugs as it is to the surgeon that he is unable to bring back a gangrenous limb to life; that the latter may be removed while the former cannot is but a law of our existence which can never be altered. That man will best contribute to the elevation of medicine and its protection from quackery who, combining diagnostic skill and pathological knowledge with an intimate acquaintance with the nature and effects of medicines, labours long, and, it may be, anxiously to evolve some laws for treatment on the now well recognized principle of following the indications of nature, rather than in a vain search after specifics, in the existence of which few places much faith.

Following up views like these Dr. Brinton points out the superiority of opium (which he gave in the form of extract) over all the other narcotics, inasmuch as its stimulant properties and the comparative uniformity and regularity of its effects renders it peculiarly fit for administration in the course of cases which are so protracted and debilitating. One exception is made in favour of the use of a combination of belladonna and opium—namely, in the case of intus-susception, where it is found that opium, even when pushed to the verge of narcotism, does not effect any diminution in the violent straining peristalsis. His experience accords with our own with regard to the fact that the antidotal power of these drugs for each other does not reach to all the effects of either, but that in many cases the one acts as a useful *adjuvans* to the other. The proportion recommended by Dr. Brinton is two parts extract of opium, and  $\frac{1}{2}$  to  $\frac{2}{3}$  parts extract of belladonna in a pill.

The use of *tobacco* is confined to the earlier stages in the form of enema, where there is no sign of prostration, as its power of inducing collapse renders its general use most undesirable. *Enemata* are of use in all cases as a means of introducing nourishment or sedatives; in some by their warmth and moisture they act as an internal stupe, while, in a few cases, by their bulk, they may assist in removing the cause of the obstruction; they should always be administered by a skilled person, and are only useful where the patient has sufficient strength of mind to bear the consequent suffering, which is reduced to a minimum by the very gradual introduction of the fluid. The long tube has not, according to our author, any advantage over the short to compensate for the danger of its use.



*Purgatives* were used from time immemorial in these cases. It was reserved for Dr. Brinton to demonstrate their uselessness, and, in many cases, their fearfully injurious effects; for although various physicians had recognized their ill effects at a certain stage in the disease, to him alone belongs the credit of pointing out that "Nature herself did all that purgatives could do in any case, by preparing within the obstructed bowel a mass adapted by its quantity, quality, and consistence, to accomplish all that is possible for any aperient to do towards opening a passage."

On the contrary, their use is positively hurtful, not only at a late but also at an early stage, by distending the bowel so rapidly as to paralyse its coats, or to provoke an excessive and exhaustive peristalsis, or to excite a fatal degree of inflammation.

Yet we fear that there are still some who persist in the old path, and aggravate instead of curing the disease. Such a case came under our notice lately, and although the treatment was altered at a sufficiently early period to save the patient's life, it was at the expense of a very protracted convalescence. Calomel, crude mercury, inflation, counter irritants, are all considered by Dr. Brinton, and with the exception of inflation (of which he has had no experience) are condemned as worse than useless. Fomentations are occasionally of service, and a bandage may assist in relieving the throes of peristalsis.

No mention is made of the use of galvanism in the treatment of certain cases of obstruction, where even opium fails to give relief. We well remember a case which came under our notice, in which the obstruction was believed to be due to an impaction of feces, and the consequent paralysis so great as to resist all treatment. In this case galvanism was applied persistently (one pole at either side of the abdomen, or one to the back and the other to the abdomen) for several days, and was finally most successful. Dr. Stokes' case, which was published by Dr. Finny in the *Dublin Quarterly Journal* for November, 1864, will be fresh in the memory of our readers. In this case purgatives, enemata, and fomentations had been tried without success before Dr. Stokes saw the case. Subsequently opium, belladonna, calomel and opium, croton oil, strychnia, and colocynth, and galvanism externally applied, were attended with scarcely any effect, so that Dr. Stokes was led to propose as a *dernier ressort* the application of the galvanic stimulus to the mucous surface of the intestine. This treatment was at once crowned with success; "the abdominal muscles were thrown into

a state of violent spasm, and three large basinfuls of liquid feces were got rid of." The operation was attended with great agony, but no hard lumps passed at any time.

This mode of procedure is only applicable where the obstruction is due to paralysis, and would be most injurious in other forms of obstruction by inducing that violent peristalsis which it is our object to mitigate.

This interesting chapter is brought to a close by a summary of the treatment advocated in the several forms of obstruction. It is as follows:—

"In intus-susception of the large intestine, repeated injections of liquid into the rectum, so as to distend the bowel to its utmost dimensions.

"In stricture of the large intestine, the institution of an artificial anus above the obstacle.

"In obstruction from bands, diverticula, &c., mostly affecting the small intestine, gastrotomy, and division of the cord-like cause of strangulation; a procedure which, if interrupted by unforeseen impediments, may further require the institution of an artificial anus in the most distended part.

"In obstruction by stricture, however, a tobacco enema should be administered at least once; a measure which should be repeated, if need be, in the obstruction by bands, and especially by gall-stones.

"In all cases, opium and support to be freely administered from the earliest stage of the malady. The bulkier liquid constituent of the food to be given as sparingly as possible by the mouth, but administered freely per anum. Distensive enemata to precede all operations, if only as a means of aiding or assuring diagnosis. Where vomiting is excessive, nourishment to be also injected into the rectum in small and frequent doses.

"After recovery, all food which can introduce indigestible substances into the intestine should be carefully avoided; the bowel having sometimes undergone changes of calibre and arrangement such as permit substances easily transmissible through the healthy canal to cause fatal obstruction."

The volume is concluded with a note by the editor, Dr. Buzzard, detailing his part in the work owing to the lamented death of the author, and the notes of three cases successfully treated on the sedative plan, in one of which the patient took no less than ninety grains of opium.

We cannot conclude this notice without expressing our profound

regret at the loss sustained by the profession in the death of the author of this valuable work. His labours have tended to throw more light on diseases of the stomach and intestinal canal than those of any other individual, and the treatment which he has proposed in cancer and ulcer of the stomach, and in obstruction, has met with universal approval and cheering success.

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*Lectures on some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics.* By H. BENCE JONES, A.M., M.D., F.R.S., late Physician to St. George's Hospital. 8vo, pp. 314. London: John Churchill & Sons.

A LONG career of able, original, and highly practical research, has placed the name of Dr. Bence Jones in the foremost rank of the cultivators of the sciences applied to medicine. In the work before us we find the result of his most recent inquiries, and we propose to pass in review the more important of his observations. The preface deals with the conservation and correlation of energy in the body. The constancy of force in the universe is a now generally recognized law in physical science; and in medicine each day's advance in inquiry shows how more and more clearly we are enabled to approximate in our explanations of "vital," that is, organic phenomena, be they chemical or mechanical, to the conditions which observation and experiment prove to be always obeyed in the phenomena of the physical world around us. "In plants and in animals," says Dr. B. Jones, "the same laws of the indestructibility, and the conservation of force, offer a new and vast field for experimental investigation into the relationships of the forces that are in action; and promise to unfold much, though possibly not all, of the mystery that is comprehended under the word 'life.'"

Further on he says—"But I shall endeavour to show, by a few striking examples, that the theory of the conservation of force opens a vast field of experimental inquiry, not only as regards the origin and connexion of the actions which constitute diseases, but also as regards the actions of the remedies by which those diseases are modified or removed."

"In proof of this I may take the first grand chemical action going on in the body—oxidation. How little of this do we know at present. Pettenkofer's experiments on respiration in health and disease will probably give us, for the first time, accurate information on the

amount of oxygen consumed by man in different circumstances. How does this oxidation take place? Whether the oxygen is made into the denser ozone (whose energy is to that of ordinary oxygen, as common phosphorus to the allotropic red phosphorus)? Whether Schönbein's views are correct—that every substance capable of being oxidized first makes the ordinary oxygen into ozone, and that this enters into combination, first slightly (still preserving its properties), and then firmly (when the ozone loses its characteristics)? Whether antozone exists, and by combining with ozone, forms ordinary oxygen? These are questions which show how much our knowledge is advancing, while they also show how much remains to be done before the chemistry of oxidation in the body can be thoroughly understood.

“One two-thousandth part of ozone in the air is said to cause dangerous engorgement of the lungs, and even smaller doses, long continued, cause bronchitis and pneumonia. The blood of animals killed by ozone, is found very rich in fibrin, and its dark colour shows that it has undergone active oxidation.”

From the researches of Professor Stokes, that distinguished authority has been led to think that cruorine (hæmatoglobulin) takes no part directly in oxidation, but that it so exalts the energy of the oxygen that it enables it, in and out of the body, to do what it would not do in its ordinary condition. However, as remarked by Dr. Bence Jones, the most energetic oxidations occur outside the capillaries where no cruorine exists.

Amongst the diseases which may be recognized as errors of oxidation, the following are enumerated by Dr. Bence Jones:—Diabetes, acidity, the production of oxalic acid, uric acid, uric oxide, cystine, fatty degeneration, gout, rheumatism, inflammation; and among fermentations: eruptive fevers, continued fevers, intermittent fevers, small-pox, syphilis, pyæmia, glanders, hydrophobia, plague. We are not prepared to go this length with our author; but the subject is still in too vague a position, as to the chemical aspect of all the phenomena concerned, to admit of any profitable discussion or critical consideration, with a view to a practical solution of the difficulties involved.

The following brief prefatory observations with regard to the role played by the nervous system in modern pathology are worthy of note:—

“We are just ceasing to regard the nervous force as the origin of all the powers in the body. Instead of making it a creator of force we



now regard it as the liberator and restrainer of the force in the body ; in other words, as the regulator through the heart and blood-vessels of the extent and degree of oxidation and nutrition that occur in the human machine. Taking the various parts of the nervous system separately, there are—1st, Central organs ; 2nd, conducting organs, transmitting impressions at the rate of twenty-eight or twenty-nine yards a second ; 3rdly, sense organs ; and 4thly, peripheral working organs ; and it is in these that the regulating powers is made manifest. For example, mechanical, chemical, electrical irritation of the vagus stops the heart's action. Irritation of the sympathetic or division of the vagi increases the frequency of the heart's contraction. The ganglia of the heart seem to differ in their action. Experiments show that some have a liberating action—an automatic, rhythmic action ; while other ganglia have a restraining action. Another example is seen in the vaso-motor nerves. Both Bernard and Schiff consider that these are of two kinds—the one set closing the vessels, and the other set of nerves opening them. When closed the blood is stopped ; there is paleness and coldness, and no effusion of parenchymatous fluid : when opened, there is increased flow of blood, redness, and higher temperature, and increased exudation from the capillaries ; in other words, the mechanical and thermal actions in the body are regulated by the nervous force acting on the heart and blood-vessels.”

The experiments of Barral give us an approximate estimate of the different amounts of force lost (to the body) in different ways. From 1 to 2 per cent. of power is given out in the heat of the urine and feces ; from 4 to 8 per cent. in the heat of the breath ; from 20 to 30 per cent. in evaporation of water from the surface ; and from 60 to 75 per cent. in conduction and radiation, and in mechanical work. Force enters the body as food, whether that be solid or fluid, animal or vegetable, æriform or mineral. It is converted into heat, muscular motion, the play of organs, its exercise of volition in all its phases ; in fine, in all that characterizes the continuance of life. How does force finally leave the body ? In the gradual restoration by *post mortem* chemical action of all its constituents to their ultimate simple elementary condition. What is it that controls and governs all force in the living body and liberates it in the dead ? We know not ; all that science, art, and observation have to tell us on this theme leaves us where we were centuries ago. Life is still the thing unknown, possibly unknowable.

Dr. Bence Jones's first chapter is devoted to the condition of “the chemical circulation,” as distinct from the vascular. Of the

rapidity with which many substances are diffused through the tissues, observation has furnished us with many striking examples familiar to all. Madder diffuses rapidly into the bones, bile into all the tissues. Many substances run through the system with wonderful celerity; that ether, asparagus, and turpentine pass rapidly their essential odoriferous particles into the urine has been long well known. It is, however, to Dr. Bence Jones that we owe the institution of accurate scientific experiments, which prove in an incontestable manner the extraordinary rapidity with which quantities, the most minute, of certain metallic and other compounds can be found in the non-vascular tissues after their ingestion.

Both in plants and animals he has applied the well-known principles of spectrum analysis to the detection of substances artificially introduced. He states:—

“The delicacy of the spectrum analysis may be seen in this table, which gives the smallest quantity of each substance that can be thus detected:—

“ Chlorate of soda,	$\frac{1}{195}$	millionth of a grain.
Carbonate of lithia,	$\frac{1}{8}$	” ”
Chloride of strontium,	1	” ”
Chloride of barium,	1	” ”
Chlorate of potass,	$\frac{1}{65}$	thousandth ”
Chloride of lithium,	$\frac{1}{12}$	millionth ”
” rubidium,	$\frac{1}{16}$	thousandth ”
” casium,	$\frac{1}{125}$	” ”

Soda exists everywhere in and out of the body, and so was not examined for. Lithia was next sought. It appears to exist in potatoes seldom, apples sometimes, bread traces, cabbage distinctly, Rhine wines always, French wines distinctly, sherry and port distinctly, in tea and coffee slight traces, ale and porter slight traces, mutton, beef, and milk none. It had already been found in sea water, kelp, spring water sometimes, ashes of wood in the Odenwald, Russian and other potashes, tobacco, vine leaves and grapes, ashes of plants in the Palatinate, milk of animals eating the produce, ash of human blood and muscles, meteoric stones, all the drinking waters of London.

The following table gives the rate of the passage of the chloride of lithium from the stomach, not only into the circulation, but out of the circulation into the textures of a guinea-pig:—

“ After $1\frac{1}{2}$ grain was taken, in 3 days, plenty was found everywhere.				
3	”	15	minutes,	everywhere except in the lens.
3	”	30	”	”
3	”	30	”	”
3	”	30	”	traces in the lens.
3	”	30	”	outer part of lens.
3	”	60	”	”
3	”	60	”	except in the lens.
3	”	$2\frac{1}{4}$	hours,	throughout lens.
3	”	4	”	”
3	”	8	”	”
3	”	24	”	”
3	”	26	”	”
$\frac{1}{4}$	”	$5\frac{1}{4}$	”	except in the lens.”

It follows from these extracts, says Dr. Bence Jones, that three grains of chloride of lithium given on an empty stomach, may diffuse into the cartilage of the hip-joint, and into the aqueous humour of the eye in a quarter of an hour. In very young and very small pigs, the same quantity of lithium may, in 30 or 32 minutes, be found in the lens of the eye, but, in an old pig, in this time the lithium will have got no further than the humours of the eye. If the stomach was empty when the chloride of lithium was taken, then in one hour the lithium may be very evident in the outer part of the lens, and very faintly in the inner part; but if the stomach be full of food, the lithium does not in an hour reach the lens. Injected by the skin, the diffusion of lithium appears to be more active still. The rate of exit of the metal from the body is next discussed:—

“ 2 grains in 6 hours gave plenty everywhere; in 6 days no trace in				
				kidneys, liver, or lens.
2	”	”	”	”
2	”	”	”	in 4 days none in lens.
1	”	5	showed partly in the lens; in 3 days faint in lens.	

With the assistance of Mr. Bowman and Mr. Critchett, some interesting observations were conducted by our author on the diffusion of lithium into the tissues in the human subject:—

“ Twenty grains of carbonate of lithia were taken twenty-five minutes before the operation for cataract; no trace of lithium was found in the cataract.

In $2\frac{1}{2}$ hours lithium was found in the watery extract of the cataract.			
$3\frac{1}{2}$	"	"	in each particle.
4	"	"	"
$4\frac{1}{4}$	"	"	"
$4\frac{1}{2}$	"	"	"
5	(old man)		"
5	"	"	"
7	"	traces in alcoholic extract of ash.	
4	days	in alcoholic extract, not the slightest trace of lithium.	
7	"	slightest trace in the alcoholic extract.	
7	"	"	"
7	"	"	"

In another experiment seven grains of carbonate of lithium were given eight hours before delivery, the lithium was detected in each particle of the umbilical cord. Thus it will be seen with what extreme rapidity this metal enters the system, and becomes diffused through its remotest parts and finest textures, while it requires days, five to seven, or even much longer, in some instances, to pass out of the body. The animal in part re-dosing itself by the re-absorption through the skin, of what has passed out in perspiration and in the hairs.

Of the highly interesting and important results in practical medicine which may be anticipated from the careful prosecution of observations such as the foregoing, we cannot but be hopeful.

Of the influence of an alkali in promoting chemical action, many examples are cited; oxygen does not act on pyrogallie acid until potass is added; sugar is reduced by the oxygen of the oxide of copper in the presence of alkali. An alkali splits fat into fatty acid and glycerine. Grape sugar exposed to ozone with potass, soda or carbonate of soda is entirely oxidized. It is highly probable that albumen is transformed into kreatin, uric acid, ozone, and other substances, only in the presence of carbonate and phosphate of soda in a temperature of 100 Fahr. Acids, on the contrary, passing by diffusion into the tissue neutralize the alkalies contained therein and thus stop oxidation. What light we may yet derive from an extension of these and similar observations to explain the phenomena of fevers it may be premature to inquire at present. We may, however, hazard the conjecture that in the excess of alkalinity in the blood and tissues may be sought one of the principal phenomena of fevers. With excess of alkali there must be excess of oxidation, that is excess of tissue change, excessive waste, excessive metamor-



phosis, and, as a consequence, excessive production of temperature. The administration of acids, especially the mineral acids, often hitherto empirically found useful, will gain an explanation based on scientific data, if these views be found tenable.

“The alkali,” says Dr. Bence Jones, “disturbs the equilibrium of the elements in the organic body by its affinity for acids. Aided by oxygen and heat, more or less complex acids are formed from the neutral substances, and if the action of the alkali is sufficiently continued, carbonic acid, water, and ammonia, alone remain.”

From the known action of the alkalies in the system, that of alkaloids may be assumed to exhibit a similar behaviour, differing, perhaps, in degree of intensity, though not in kind of operation. Our experimental knowledge of their powers of diffusion, and of their energy in the system is, however, as yet too limited.

“Thus,” says Dr. Bence Jones, in his concluding observations on this subject, “the circulation of diffusion rises even to an equal, if not to a greater importance than that other more mechanical circulation of the blood, which, indeed, in two out of the four grand divisions of animals, is almost absent; and during the early weeks of our own fetal life is entirely wanting; and in this chemical circulation we recognize a link between the lowest vegetable, and the highest animal creation, since their diffusion is a necessary condition on which the chemical actions in both kingdoms of nature depend.”

Amongst the most remarkable of recent discoveries in the chemistry of the human body, must be recorded that which has rewarded the unwearied spirit of research which so eminently characterizes Dr. Bence Jones. We allude to the existence in the textures of animals of a fluorescent substance closely resembling quinine, foreshadowed, it is true, to some extent, by the observations of Brücke, Helmholtz, and Regnaud. In conjunction with Dr. Dupré, Dr. Bence Jones was engaged in observations to determine the rate of passage of quinine into and out of the textures of animals, this alkaloid having been chosen in consequence of Professor Stokes’s remarkable discovery of the change in the refrangibility of light due to the presence of quinine.

As exhibiting the delicacy of this test, the following results were arrived at, when the spark from a Ruhmkorff coil was the source of light:—

"Sulphate of quinine gave—

Slight fluorescence, when  $\frac{1}{300000}$  of a grain was present.

Feeble               "                $\frac{1}{300000}$                "               "

Distinct           "                $\frac{1}{500000}$                "               "

"One grain of sulphate of quinine in one million eight hundred parts of water showed the blue fluorescence distinctly in twenty grains of the solution."

In following up their experiments on the passage of quinine through the textures of the guinea-pig, our authors were at first somewhat disappointed to find that fluorescence was observable both in those to which quinine had been administered, and those to which it had not. Attention was now turned to determine the fluorescent substance which apparently resided naturally in the textures, and it was ascertained, that without any previous preparation, it can be proved to exist in the living, and in the dead textures. It can be demonstrated in the recent lens after death, and can be equally well shown to exist in the human lens during life. To this substance the name of Animal Quinoidine has been applied, as in all respects its behaviour with the ordinary re-agents is similar to, if not identical with that of the well-known alkaloid quinine. The quantity of the fluorescent substance is approximately shown by the following table, exhibiting its amount in grains in different parts of the guinea-pig and in man, measured by the number of grains of quinine in 100 litres (= 176 pints) of water, that gave the same fluorescence:—

				In Guinea-Pigs			In Man		
Liver,	-	-	-	6-3	6	2	2	2	2
Lenses,	-	-	-	3	2	2	2	—	—
Kidney,	-	-	-	3	2	2	2	2	3 to 6
Urine,	-	-	-	3	2	2	—	—	—
Bile,	-	-	-	3	2	2	—	—	—
Blood,	-	-	-	3	2	2	—	—	—
Brain,	-	-	-	3	2	2	—	—	—
Nerves,	-	-	-	2	2	2	—	—	—
Muscles,	-	-	-	3	2	2	3	1	2
Humour of the Eye,	-			2	2	2	1	2	2
Cartilages,	-	-		—	—	—	3	1	—
Spleen,	-	-	-	—	—	—	1	1	3
Lungs,	-	-	-	—	—	—	1	1	2

With regard to the origin of the Quinoidine, Dr. B. Jones looks upon it as a derivation from albumen; and he furnishes us with two parallel columns exhibiting the synthetic products formed by the plant or the chemist, starting, on the one hand, from carbonate of ammonia and water, and culminating in albumen, and on the other the substances formed analytically from albumen, in its passage downwards, to carbonate of ammonia and water, animal quinoidine taking its place next to caseine as third in order.

Thus we see how the cinchona plant and the animal alike may form quinine from such simple elements as carbonate of ammonia and water.

Sulphate of quinine is shown to pass with great rapidity into the textures. In a quarter of an hour after four grains of sulphate of quinine were taken the fluorescence was found to rise to 75 grains to 100 litres of water. It is found in the greatest amount in the liver and kidneys; rather less in the blood, urine, and muscles; still less in the brain, nerves, and bile. In three hours the maximum effect of the quinine appears to be reached. In six hours the fluorescence was less than in three; and in seventy-two hours it had disappeared altogether. The nerves would seem to show less of the fluorescent property after ingestion of quinine, than the other parts named. This is a result not a little remarkable, and certainly different from what we might be led *a priori* to anticipate, having in view the effects upon the nervous system ordinarily attributed to the action of quinine.

In an elaborate table the fluorescence of the different textures is shown after experiments in which four grains of sulphate of quinine had been administered to guinea-pigs.

As bearing on the action of quinine in the system, the following passage explaining the views of so accurate an observer as our author are worthy of being cited:—

“Thus then quinine goes everywhere; and wherever it goes it meets with the natural fluorescent substance like quinine, which most probably is constantly forming and undergoing oxidation. The incoming quinine causes a temporary excess of quinine in the textures. Probably it causes a stoppage of the fresh formation of quinine from albumen; a temporary arrest of the changes going on; a transfer of action perhaps to the quinine introduced, so that, with large doses, deafness and great prostration, and almost imperceptible pulse, are produced in man, whilst in guinea-pigs death even is caused by the extreme prostration. In small doses, quinine, probably like alcohol, gives an immediate stimulus when the first chemical action takes place; but soon the quinine retards the chemical changes in

the nitrogenous substances, just as alcohol by its secondary action retards the chemical changes in the hydro-carbons of the different textures."

Of the high value and even practical importance of these views it is impossible to entertain a second opinion, and it is undoubtedly from the prosecution of researches such as those we have just described, and upon principles like those just enumerated, that we may look forward to the establishment of a rational system of therapeutics in that future so rich in promise for the physician who shall put himself in a position to render available, for his art, all that is furnished to his hand by researches and advances in the sciences allied to medicine. We have dwelt thus at length and in detail on the earlier chapters of Dr. Bence Jones's work, because of the importance and the novelty of his observations. This portion of the work would constitute, in fact, a separate treatise of much value if fully developed in all the expansion and detail its subject matter admits of, and to no hands could such a work be better committed than to those of our author.

In the chapters which follow, we find the clinical application of the principles discussed in the preliminary section to the diagnosis and treatment of disease. Lecture III. is devoted to Diabetes. We have first a very full exposition of the author's views on this still obscure and important malady, with some interesting cases dealt with from an original point of view. It is still to be admitted that no known remedy is capable of controlling this singular affection, which from all we have now pretty well established as to the nature and order of succession of its chief phenomena, must be regarded as a lesion of function. The effect of diet is far beyond that of any drug which the pharmacist has yet supplied us with. An anti-farinaceous, or in other words, an anti-saccharine diet, will remove the sugar from the urine, and stop all the symptoms of the complaint in all those cases in which the power of causing the animal sugar remains unaffected.

Even when the consumption of the animal sugar is imperfect, or impossible, an anti-saccharine diet will lessen the thirst, the flow of water, the dryness of the mouth, and even the constipation, and check, though it may not stop, the waste.

The simplest formulæ for the diet may be thus stated:—"All animal produce, including fish, flesh, fowl, game, eggs, cream, and meat soup, should be taken; and all vegetable food that contains starch, dextrin, and sugar, should be avoided."



Very particular and explicit details next follow, which show the relative values, as sugar-suppliers, of various kinds of vegetable food, and of various wines and liquors; and at page 62, and five following pages, will be found *in extenso*, an enumeration of the dishes suitable for diabetic patients, according to the principles laid down by M. Bouchardat, and which Dr. Bence Jones says very frankly, "Is as much superior to any table I could draw up, as French is to English cookery." The publication of this table in so accessible a form, cannot but be of great practical service to the physician in charge of diabetic patients.

The ensuing chapters are devoted to "Acidity," "Gout," "The Oxalic," and "The Xanthin Diathesis," "The Cystin Diathesis," "The effects of Cold," on "Fatty Production," "Inflammation," "Bright's Disease," on "Fermentations and Fevers," on "Subtrophic and Pertrophic Actions," on "Surgical and Medical Diseases," and on the "Actions of Medicines." In each and all of these sections will be found matter of high interest, illustrated by original inquiry, and with instructive bearing on practice. And we can only regret that our limits prevent us from following in detail the footsteps of our author. But we have said enough of the contents of this valuable volume to ensure its warm reception at the hands of all those who aim at substituting a rational practice of their profession for a blind empiricism.

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*Neligan's Medicines: Their Uses and Mode of Administration.* By RAWDON MACNAMARA, Licentiate of the Royal College of Physicians; Licentiate, Fellow, Member of Council, and Professor of Materia Medica, Royal College of Surgeons in Ireland; Surgeon to the Meath Hospital, &c., &c., &c. Seventh Edition. Dublin: Fannin & Co., Grafton-street. 1868. Pp. 934.

THIS is a book, of which not only the author and publisher, but even the medical profession in Ireland, have every reason to feel proud. A work of the kind, more concisely, or more carefully written, or one containing more information, has not as yet come under our observation. Very few works attain to the honour of a second edition, and perhaps not one per cent. reach a third issue. Of the five thousand works to which the prolific press of Great Britain gave birth in the year 1867, not one in three hundred was a fourth

edition. It is true, that works pertaining to certain departments of literature, whilst destitute of intrinsic value, may, in a short time, pass through half a score of editions; yet, it may safely be asserted that no scientific manual not possessed of great merit, ever becomes a standard work. The best evidence of the high estimation in which *Neligan's Treatise* is held by medical practitioners and students, is afforded by the simple fact of its having attained to a seventh edition within a period of about twenty years. Every reader of such a work is, more or less, a critic; and when we find many thousands of critical readers purchasing, year after year, copies of *Neligan's Materia Medica*, we may fairly conclude that the professional opinion of its character is in the highest degree favourable.

The merit of the plan of this treatise is due to the late Dr. Neligan; and in his hands the work passed through five editions, the last of which included 580 pages. In 1864 the publication of the *British Pharmacopœia* rendered the current edition of Neligan's *Medicines*—at that time, however, out of print—almost useless; but for some time previously the preparations for a new edition had been commenced. At that time Dr. Neligan's failing health precluded him from engaging in any kind of literary labour, and the execution of the new edition was entrusted to Dr. Rawdon Macnamara, who completely re-cast the subject matter, and added 150 pages to the volume. Last year a second and corrected edition of the *Pharmacopœia* was issued; and this circumstance, and, as we are informed, the complete exhaustion of the sixth edition, account for the appearance of the present handsome volume of 934 pages, which is, in almost every respect, a perfectly new book, as compared with the fifth edition. Indeed, we recognize so little of Dr. Neligan's labours in it, that in our opinion it would have been fairer to both the original author and the present editor, had the publishers induced the latter to assume the whole responsibility of the undertaking; to bear all the blame of any errors that it might be found to contain; to enjoy all the credit to which it might be considered as entitled. In a future edition we hope to see these suggestions acted upon by the excellent and enterprising publishers.

This work, like many others of the same kind, is, to a great extent, based upon the *Pharmacopœia*, but it supplements the matter contained in that official volume with a vast amount of information—medical, chemical, and botanical. Indeed, excepting the diagnosis of disease, there is scarcely a department of the theory and practice of medicine on which it does not treat. The work is divided into

twenty-two chapters, and contains three appendices. The contents are distributed in these divisions in the following manner:—In each chapter are given all the medicines which are connected with each other by one or more strong points of resemblance in their therapeutical action; for example, Chapter I. is wholly occupied with the consideration of ANTACIDS, under which head is included all the preparations of soda, potash, ammonia, lithia, and the earths that exhibit an alkaline reaction. We have the subjects—manna, honey, senna, jalap, aloes, calomel, &c., discussed under the head of CATHARTICS; vinegar, creasote, sulphate of copper, &c., in the chapter on Astringents; opium, belladonna, henbane, under the class of NARCOTICS. In this way twenty of the chapters are occupied, the last two being respectively devoted to WATERS and SUPPLEMENTAL AGENTS. This is a very excellent methodical arrangement, and is open to but a single objection, namely, that some of the articles described under one head, must be also considered under another. For example, the preparation, chemical and physical properties, adulterations, and general therapeutical properties of magnesia, and its alkaline compounds, are described under the head of ANTACIDS; but some of these bodies are again discussed, very briefly, however, in the chapter on CATHARTICS. This procedure causes a waste of space, and sometimes leads to repetitions; for example, we are informed in the first article on magnesia (page 211), that “practitioners in prescribing it, should bear in mind the danger, after long continued use, of its forming concretions in the alimentary canal, depending, as it does, for its elimination on the amount of acids which it may meet in the primæ viæ. Many cases are on record where large masses have been met with in the intestines, agglutinated together with intestinal mucus, months after its administration had been discontinued.” This information is again, in substance, given in page 182, under the head of CATHARTICS. Sulphate of zinc figures under four different heads, and the same may be said of many other articles of the *Materia Medica*. We repeat, this is a drawback to the systematic mode of arranging the contents adopted, but it is one which we do not think admits of a remedy. Had the medicines been grouped under the heads of the various diseases, in the treatment of which they are employed, such a method would have been open to the grave objection of encouraging empiricism. A book so arranged would, no doubt, be largely consulted by quacks—*with or without medical qualification*—and might be looked upon as a kind of substitute for *Buchan's Family Medicines*. We believe,



therefore, that although the distribution of some of the medicines described in this book under different headings, is sometimes inconvenient, and renders the descriptions incomplete, or rather disjointed, it is the best one that could be adopted.

Each chapter opens with a concise general description of the class of remedies on which it treats; then each article is described in alphabetical order. If it be a chemical substance and an officinal one, its preparation, according to the *Pharmacopœia* directions, is given, and the changes that take place in its formation are explained, the use of chemical symbols and algebraic formulæ being employed. We notice that the formulæ of the chemical substances are given according to both the old and the new theories. In this matter the author follows the example shown by the editors of the *Pharmacopœia*. In explaining, however, the decompositions and other changes that take place in the various processes given in the *Pharmacopœia*, the author adheres to the old system of notation. It is to be regretted that he did not employ both methods, as the new one is now all but generally adopted in these countries, and many students are not acquainted with the old one. It is probable that Dr. Macnamara's reason for not using both systems in these cases, is the great economy of space—an important point when a volume so bulky is concerned—which he effects by employing one only. We trust, however, that by the time an eighth edition is called for, the practitioners and students of medicine will be prepared to discard the old system altogether.

The preparation of the substances having been gone into, its physical attributes and chemical history are detailed so fully and accurately as to leave nothing in connexion with these subjects to be desired. If the article is liable to the sophisticator's art, the various kinds of adulteration are indicated, and the processes by which these serious frauds may be detected, fully explained. Next in order comes the most important of the divisions into which the description of each article is distributed, namely, its therapeutical effects. This subject, though of the greatest utility to the student, will be most appreciated by the practising physician. In treating upon it, the author displays his erudition, his critical powers, and his total want of prejudice. The number of authorities quoted under this head is extremely great, but the information which the author has gained from his extensive reading is not presented to us in a crude state. It is served up to us in remarkably clear, concise language; and although he quotes from the writings of several thousand physicians, he does not, except in two instances,



give a single extract from any paper, essay, or book. This is, to our mind, a meritorious feature in this work, and one in which it contrasts favourably with many of the medical books lately published, in which three-fourths of the subject-matter are contained within inverted commas. The different official preparations of the article—such as “Solution,” “Liquor,” “Powder”—are stated, the dose of each mentioned, and the “mode of administration” described. The style in which the book is written, and the method of arrangement, are well exemplified in the following extract, which we select on account of its completeness and convenient length:—

“*Iodum.*—*Iodine.*—(A non-metallic element obtained principally from the ashes of sea-weeds.) I (=127). This elementary substance was first described in 1811 by M. Courtois, of Montpellier, who recognized its presence in kelp, in which it exists in combination with potassium, sodium, and magnesium.

“*Preparation.*—Iodine is an article of the *Materia Medica* in the British Pharmacopœia. It is procured by the manufacturers on the large scale from the ashes obtained by carefully burning various species of sea-weed. These ashes, technically called *kelp*, are washed with water, to which they yield about half their weight of salts. The mother liquor is poured off from the salts (sulphate and carbonate of soda and chloride of potassium), which are deposited by evaporation and crystallization; it is then treated with oil of vitrol, which sets free carbonic acid, sulphurous acid, sulphide of hydrogen gas, and sulphur, which latter is precipitated, whilst the iodine is converted into hydriodic acid. To the mother liquor peroxide of manganese is added, which decomposes the hydriodic acid, its oxygen uniting with the hydrogen to form water, setting free the iodine, which is recovered by sublimation, whilst the resulting protoxide of manganese unites with the sulphuric acid to form sulphate of manganese, thus,  $HI + MnO_2 + SO_3 = HO + I + MnOSO_3$ . M. Barruel has suggested this modification of the process. After as much of the salts as possible are gotten rid of by crystallization, the mother liquor is to be evaporated to dryness, and the resulting mass ignited with peroxide of manganese, by which all the sulphides, sulphites, and hyposulphites are converted into sulphates. The residuum, dissolved in water, is to be treated with a mixture of two parts and a half of sulphate of iron, and one part of sulphate of copper, so as to precipitate the subiodide of copper; this is heated with binoxide of manganese and sulphuric acid when the iodine is disengaged in violet vapours, which condense into black crystals as they cool. Iodine as it occurs in commerce being, however, seldom sufficiently pure for medical purposes, should be purified as follows:—Take of iodine of commerce, one ounce. Introduce the

commercial iodine into a porcelain capsule of a circular shape, cover this as accurately as possible with a glass matrass filled with cold water, and apply to the capsule the heat of boiling water for twenty minutes. Let the matrass be now removed, and should colourless acicular prisms of a pungent odour be found attached to its bottom, let them be separated from it. This being done the matrass is to be restored to its previous position, and a gentle and steady heat (that of a gas lamp answers well) applied, so as to sublime the whole of the iodine. Upon now allowing the capsule to cool, and lifting off the matrass, the purified product will be found attached to the bottom of the latter. When separated it should be immediately enclosed in a bottle furnished with an accurately ground stopper.

*Physical Properties.*—Iodine is generally met with in the form of small crystalline scales, often accreted into masses of a bluish-black colour with a metallic lustre. It has a strong disagreeable odour resembling that of chlorine, and a very acrid taste. From a solution in liquid hydriodic acid, it may be obtained in tolerably large crystals, which are oblique octohedrons with a rhombic base. Its density is 4.948.

*Chemical Properties.*—Iodine is an elementary body existing in combination in both kingdoms of nature; its equivalent is 127. It evaporates slowly at the usual temperature if exposed to the air, and more rapidly if moistened; fuses at  $224^{\circ}$  and boils at  $356^{\circ}$ . Exposed to an increased temperature it is volatilized in the form of a beautiful violet-coloured vapour, from whence it has derived its name (*ἰώδης*, violet). Iodine requires 7,000 parts of pure water for its solution, to which it imparts a brownish colour; is much more soluble in alcohol, and very soluble in ether. The presence of tannin in water renders iodine more soluble in that liquid, which property may be taken advantage of in prescribing it in medicine, the addition of any astringent tincture or syrup increasing its solubility. Solutions of the iodides in water dissolve much iodine. The best characteristic of iodine is its action on starch, forming with it an *iodide of starch*, blue in colour; so delicate is this test that it will detect one grain of iodine in a million grains of water; a temperature of  $160^{\circ}$ , however, destroys this colour, a fact which should be borne in mind when applying this test.

*Character and Tests.*—In laminar crystals, of a peculiar odour, dark colour, and metallic lustre, which, when heated, yield a beautiful violet-coloured vapour; very sparingly soluble in water, but freely dissolved by alcohol, by ether, and by a solution of iodide of potassium. The aqueous solution strikes a deep blue colour with starch. It sublims without leaving any residue, and the portion that first comes over does not include any slender colourless prisms emitting a pungent odour. 12.7 grains dissolved in an ounce of water containing fifteen grains of iodide of potassium require for complete discoloration 1,000 grain-measures of the volumetric solution of hyposulphite of soda.

“*Adulterations.*—Iodine is frequently adulterated with fixed substances, such as charcoal, plumbago, black oxide of manganese, &c., all of which may be readily detected by their not being sublimed on the application of heat, or by their being left as an insoluble residue when iodine is treated with alcohol. Attention has been also directed by Professor Christison to an adulteration of much consequence, that with water, of which it frequently contains from 15 to 20 per cent.: that is to say, ʒj. of iodine may contain gr. xc. or even more of water. It may be readily detected by pressing a specimen between folds of filtering paper, or by shaking it in a very dry bottle. If greater accuracy be required, the volumetric test of the Pharmacopœia may be applied, which admits of no impurity, and which will be understood by reference to what has been already written, page 552. The slender pungent crystals alluded to in the pharmacopœial tests are *iodide of cyanogen*, an occasional impurity sometimes present to the extent of one per cent., and to which attention was first directed by Meyer and Klobach.

“*Therapeutical Effects.*—Introduced into the stomach, iodine exerts a local irritant action on that viscus, causing nausea and vomiting; in large doses, it produces the effects of an irritant poison; but in many instances, even when taken in enormous quantities, it has caused scarcely any effect if dissolved in a large quantity of fluid. In slight or medicinal doses, iodine acts as a special stimulant to the glandular system, generally affecting at the same time the organs of secretion, stimulating them to increased action. Under the continued use of small doses of this medicine, the removal or palliation of disease will sometimes take place without any perceptible action on the system generally; in other instances much emaciation and derangement of the digestive functions will be produced; while the very reverse effect, namely, deposition of fat and increased appetite, is very frequently observed as the consequence of a lengthened administration of iodine. So far as I have observed, the deposition of fat is consequent on its administration in small doses; the absorbents are thus stimulated to *moderately* increased action, whereby food is more thoroughly assimilated, and the individual grows fat; in large doses the action of the stomach is interfered with, the appetite more or less impaired, but the action of the absorbents, intensified by the iodine, exhibits itself on the adipose tissue already stored up, and consequently the individual grows thin. Recently an extract of the *fucus vesiculosus* in two to five grain doses three times a day has been suggested for the purpose of reducing obesity, for which purpose it is stated to be very effectual. I entertain no doubt that any property in this respect that it may possess is due to the iodine it contains. A curious statement, the truth of which I am inclined to doubt, for I cannot discover any authentic record of its having been witnessed in this country, was put forward some years ago on the Continent; that absorption of the mammæ in females and

wasting of the testicles in males have been produced by the continued administration of iodine. A remarkable train of symptoms, characterizing a peculiar disordered state of the system which has been named *iodism*, occasionally arises when the use of iodine in frequent small doses has been persisted in for a long time. These symptoms are nausea, headache, general languor and loss of appetite, followed by vomiting and purging, extreme depression, frequent small pulse, great weakness, fainting, and dry cough, occasionally attended with inflammation of the mucous membrane lining the air-passages, and terminating in death, if the use of the iodine be not abandoned in time. Iodism is, however, in the present day rarely witnessed, and when it does occur, is easily checked by suspending the use of the medicine. A far more common idiosyncrasy in connexion with iodine is the development in some individuals of symptoms resembling coryza. I know two or three persons in whom the smallest dose either of iodine or of iodide of potassium will immediately develop this most remarkable train of symptoms. Iodine is a most valuable remedial agent in the treatment of glandular enlargements, and in scrofulous affections; but its employment is contra-indicated when acute inflammation is present. In bronchocele it has proved more successful than any other remedy; indeed there are few cases, unless where the thyroid gland has become completely indurated, which will withstand the use of iodine when continued steadily for six weeks or two months; and even cases where the gland is much indurated are often remarkably relieved. In the innumerable varieties of scrofulous affections this remedy is most extensively employed and with decided advantage. It is found particularly beneficial in glandular swellings, tumours, abscesses, ulcers, ophthalmia, and diseases of the bones occurring in scrofulous constitutions. Iodine has also proved eminently successful in chronic enlargements of the abdominal viscera, particularly of the liver, spleen, and ovaries. There are no remedies which in my experience prove so successful in the treatment of cutaneous diseases, especially those of a chronic character, as iodine and its preparations; but to prove beneficial, their administration must be persisted in for some time, until in fact the system is manifestly brought under their influence. In fine, iodine has been proposed as a remedy in phthisis, in amenorrhœa, in leucorrhœa, in gout, in palsy, in chorea, in ascites, &c.; but in all these cases its success is very equivocal. The inhalation of the vapour of iodine was at one time very much used in the treatment of phthisis, and of chronic bronchitis, but general experience has proved its inutility. An injection, originally suggested by Sir Ranald Martin, composed of one part of tincture of iodine and three parts of water, is used after tapping, with most successful results, for the radical cure of hydrocele. Topically, iodine is employed in the form of tincture, of ointment, or of a solution in water, as a local stimulant in many forms of chronic cutaneous diseases, to



enlarged glands, in chronic swellings of the joints, to inflamed bursa, to buboes, over large chronic abscesses, in erysipelas, &c.; but its external employment requires caution, as, if employed in too concentrated a form, it is apt to excite severe local inflammation. A remarkable case of this kind has been placed on record by me in vol. 40 of the *Dublin Medical Press*, p. 65. No matter in which of these ways iodine be employed, whether internally, or as an injection in hydrocele, or painted on the surface for any length of time, it is absorbed, and can be detected by chemical reagents in the various secretions. The urine is that generally selected for this purpose; and inasmuch as the iodine, although introduced in the free state, becomes combined with some base in its transit through the system, it is essential, previous to applying the starch test, to set it free, which is generally done by nitric acid. Presuming the base with which it has associated itself to be sodium, three equivalents of the iodide will require four equivalents of nitric acid, one of which is resolved into nitric oxide gas, which escapes, and three atoms of oxygen, which unite with the three sodiums to form three sodas, which uniting with the remaining three nitric acids form three nitrates of soda, whilst the three iodines unite with three equivalents of starch to form three iodides of starch; thus,  $3\text{NaI} + 4\text{NO}_5 + 3\text{Am} = \text{NO}_2 + 3\text{NaONO}_5 + 3\text{AmI}$ . After using it as an injection for the radical cure of hydrocele, I have thus detected it within five minutes in the urine of the patient. In poisoning with iodine, emetics should be administered, and their operation aided by the use of demulcent and amylaceous drinks, as starch, flour, &c., diffused through tepid water or milk.

“*Dose and Mode of Administration.*—Iodine is not administered in substance; and as it is usually given in combination with iodide of potassium, there are no simple preparations of it contained in the Pharmacopœia. As a rule, iodine and its preparations should be administered *before* meals, when we wish to produce decidedly its specific effects.

“*Preparations of Iodine*—Cadmii Iodidum (see p. 624); Ferri Iodidum (see *Tonics*); Hydrargyri Iodidum Rubrum (see p. 645); Hydrargyri Iodidum Viride (see p. 647); Linimentum Iodi; Linimentum Potassii Iodidi cum Sapone (see p. 686); Liquor Iodi; Pilula Ferri Iodidi (see *Tonics*); Potassii Iodidum (see p. 683); Sulphuris Iodidum (see p. 687); Syrupus Ferri Iodidi (see *Tonics*); Tinctura Iodi; Unguentum Cadmii Iodidi (see p. 626); Unguentum Iodi; Unguentum Plumbi Iodidi (see p. 680); Unguentum Sulphuris Iodidi (see p. 688); Vapor Iodi.

“*Linimentum Iodi.*—*Liniment of Iodine.*—(Take of iodine, one ounce and a quarter; iodide of potassium, half an ounce; camphor, a quarter of an ounce; rectified spirit, ten fluid ounces. Dissolve the iodine, iodide of potassium and camphor in the spirit.) This liniment is but half the strength of the Linimentum Iodi, 1864; the camphor is now introduced into it for the first time. This preparation is intended solely for

external use ; it should be applied cautiously, as it is an energetic vesicant, to produce which effect it is well suited.

" *Liquor Iodi.*—*Solution of Iodine.*—(Take of iodine, twenty grains ; iodide of potassium, thirty grains ; distilled water, one fluid ounce. Dissolve.) Another of the uncalled-for formulas in the Pharmacopœia, one which might well have been kept for extemporaneous prescription. It may be used as a substitute for the tincture for external use, or well diluted with water it may be used for the preparation of solutions such as those of Lugol, described below ; but even the pharmacopœial authorities seem at a loss to know what to do with this production of theirs, as they ascribe to it no dose, nor otherwise indicate its proposed use.

" *Tinctura Iodi.*—*Tincture of Iodine.*—(Take of iodine, half an ounce ; iodide of potassium, a quarter of an ounce ; rectified spirit, one pint. Dissolve the iodine and iodide of potassium in the spirit.) This may be used as a paint, over enlarged glands, &c. ; it may be applied for a long time before it will vesicate ; it may be also administered internally in ten to twenty minim doses ; it is miscible with water, and is used in the preparation of the Vapor Iodi.

" *Unguentum Iodi Compositum.*—*Compound Ointment of Iodine.*—Take of iodine, thirty-two grains ; iodide of potassium, thirty-two grains ; proof spirit, one fluid drachm ; prepared lard, two ounces. Rub the iodine and the iodide of potassium well together, with the spirit, in a glass or porcelain mortar ; add the lard gradually, and mix thoroughly.) A convenient form for embrocation over enlarged glands, with a view to their dispersion.

" *Vapor Iodi.*—*Inhalation of Iodine.*—(Take of tincture of iodine, one fluid drachm ; water, one fluid ounce. Mix in a suitable apparatus, and, having applied a gentle heat, let the vapour that arises be inhaled.) Another new and most uncalled-for preparation, one which will always require extemporaneous prescription.

" *Ioduretted Mineral Waters, LUGOL.*—(These solutions are of three strengths—No. 1 containing gr.  $\frac{3}{4}$  of iodine and gr.  $j\frac{1}{2}$  of iodide of potassium ; No. 2 gr. j. of iodine and gr. ij. of iodide of potassium ; No. 3, gr.  $j\frac{1}{4}$  of iodine, gr.  $ij\frac{1}{2}$  of iodide of potassium ; dissolved respectively in eight ounces of distilled water.) These three solutions are of a convenient and useful strength for the employment of iodine. Lugol's plan for using them was to commence the treatment with six ounces daily of No. 1, which was to be persevered with for two weeks, when the entire quantity was to be consumed daily for a week or so longer : the patient was then to proceed to No. 2, and consume the entire quantity each day, and finally to complete the cure with No. 3.

" *Incompatibles.*—Ammonia, sulphur, phosphorus, metals and their salts, hydrosulphates, sulphuric, nitric, and hydrocyanic acids, and the vegetable alkaloids."

In the case of substances of vegetable origin, the plants from which they are derived are pretty fully described; their chief botanical characteristics are stated, and the natural family, and Linnæan class and order to which they belong, are mentioned. For the use of students an appendix is given, containing a classified arrangement of the principal plants used in medicine, together with the preparations of those of them that are officinal. The arrangement is according to the natural system. This table, the work of Dr. Hewett, is a very valuable one, and will be found of great use to the student.

We have read very carefully through this book, and, large as it is, we have found but very few errors of omission or commission, and such as exist, are of so very trivial a character, that they do not, in the slightest degree, detract from the value of the work. In the article on opium, where so many analyses of that substance are given, and the labours of so many chemists, British and foreign, acknowledged, we are somewhat surprised that no reference is made to Dr. Thomas Anderson's researches: they are both recent and important. In referring to works on Entozoa, it would have been well to have mentioned Dr. Cobbold's splendid work, more especially as it is, unlike most works of the kind, a production of the British press. In the article on Soda Water, it is stated that that popular beverage often consists solely of a solution of carbonic acid gas in water. Our experience of that fluid is, that in nineteen instances out of twenty, it contains not only soda, but also common salt; and speaking of soda water leads us to remark, that a chapter of this book is, for the first time, wholly devoted to the subject of "Waters." In this section, which includes 24 pages, a brief description (sufficient, however, for all, save the hydropaths), of natural, distilled, and mineral waters is given. The information contained in this chapter, will be found extremely useful to those whose limited libraries do not contain any special works on mineral waters. The analyses given of mineral waters are, as a rule, those most recently performed, and by the most eminent chemists. We are glad to find noticed the excellent sulphurated and chalybeate springs of Lisdoonvarna, in the county of Clare. The composition of these waters show that they are equal, if not superior, to most of the springs of the same class in England, and on the Continent. The sulphurated spring of Strathpeffer, Scotland, of which Dr. Macnamara says, that "from an examination of its chemical ingredients, one should imagine it to be possessed of valuable remedial powers," is to our mind, not only greatly inferior to the Irish spring, but positively dangerous. In

the water at Lisdoonvarna, there is no sulphate of calcium (nor *chloride of lime* as quoted) present; whereas, in the Scotch spring, the amount of that objectionable ingredient is no less than 39·45 grains per gallon. There is every reason to believe that water containing more than twelve grains of sulphate of calcium is likely to give rise to various affections of the alimentary canal, and to induce attacks of cholera, when that disease is epidemic. According to Parkes, any amount of sulphate of calcium, beyond three grains per gallon, is to be looked upon as excessive and unwholesome proportions; and we believe that the best springs are those in which the sulphate of calcium exists but sparingly.

Another new feature of this edition is a special chapter on "The Administration of Medicines," mention of which is omitted from the table of contents, being, no doubt, a printer's blunder. In this section we have very ably discussed the subject of "prescriptions." The author believes that whilst the modern physicians have wisely abandoned the absurd practice prevalent in the last century, of ordering forty or fifty different substances in a single mixture, they are in danger of drifting into the opposite extreme, an observation which coincides fully with our own views on the subject. Medicines may, in this respect, be compared with foods, for whilst the daily use of a great variety of the latter is usually followed by sad results to the animal economy, on the other hand, too much simplicity in diet is nearly as great an evil. There is no doubt but that, as a general rule, three or four ingredients should, at the least, be ordered in a prescription. Dr. Macnamara thinks so, and he divides the constituents of a mixture into—1st, the *remedium*, or special agent, in fact, *the* remedy. 2nd, An agent, the *corrigen*s, the presence of which is intended to correct any unpleasant property possessed by the *remedium*. 3rd, The *adjuvans*, the therapeutic action of which resembles the *remedium*, and, therefore, supplements its effects; and 4th, The *menstruum* or *vehiculum*, which forms the bulk, and least active portion of the medicine. It is in the scientific arrangement of these constituents of a mixture that the skill of the prescriber is really shown, and as an example of what may be termed a scientific formulæ, the author gives us the following prescription:—

<i>Remedium</i> .	.	.	.	.	Sulphatis magnesiæ, ʒi.
<i>Corrigen</i> s .	.	.	.	.	Syrupi zingiberis f ʒss.
<i>Adjuvans</i> .	.	.	.	.	Tincturæ sennæ, f ʒi.
<i>Menstruum</i>	.	.	.	.	Infusi sennæ, ad ʒviii.



Here the action of the remedium is not only assisted by the *adjuvans*, but this latter assists the *corrigen*s in its action, in virtue of the spirit and aromatics which it contains; whilst the *menstruum* not only acts as such, but also acts as an *adjuvans*, and in a minor degree, in virtue of the ginger which it contains as a *corrigen*s. The *corrigen*s again discharges a double duty.

The subjects treated upon in this chapter will be found amongst the most interesting, as they are certainly the most original in this work.

We should not omit to state that, although by far the largest portion of this work is devoted to the chemistry and botany of the *Materia Medica*, yet, the information with reference to the therapeutical and physiological actions is very ample, more especially in the cases of the more important articles. We select, as an illustration of the style of this department of the work, the excellent account of chloroform:—

*“Therapeutical Effects.*—From the time of its original discovery, *exhibited internally* in the fluid form as a sedative, chloroform has been more or less used on the continent and in America, but was very little employed in this country. The chief diseases in which it has been administered with benefit are asthma, spasmodic cough, and cancerous and other painful affections; in cancer it was most highly praised by Mr. Tuson, of London, but general experience has not confirmed his extravagant statements. More lately it has been given with excellent effect in obstinate vomiting, in painful affections of the digestive organs, especially the various forms of colic, and in nervous and spasmodic diseases, such as hysteria, tetanus, hydrophobia, delirium tremens, in most of which affections I have prescribed it with decided benefit. A remarkable property it possesses of reducing the frequency of the pulse in delirium tremens has been alluded to by my distinguished friend Mr. Butcher; in some cases bringing it down to fifty, or even forty in the minute; this is a statement which I have myself frequently verified. In sea-sickness it has been found very efficacious in some cases, whilst in others it has totally failed; it should be given in five or ten minim doses, with or without a little brandy; it has been also employed in the treatment of spasmodic cholera. In many of these cases pure chloroform is preferred, in others either the *spiritus chloroformi* or chloric ether is a favourite formulary. *Externally applied* it allays pain and local irritation, and therefore constitutes a useful addition to liniments or ointments in neuralgia, muscular rheumatism, and cutaneous diseases attended with itching, especially prurigo, chronic eczema, urticaria, and lichen.

“But it is from its effects when *inhaled in the form of vapour* that

chloroform has become so important a therapeutical agent. Towards the close of the year 1846 the discovery was made in the United States of America, that a state of partial coma with insensibility to pain could be produced by the inhalation of the vapour of sulphuric ether, and this discovery was rapidly taken advantage of for the purpose of preventing any suffering to the patient during surgical operations. It was almost immediately found, however, that either inhalation was very uncertain in its effects, producing in many persons violent excitement, spasmodic action of the muscles, delirium, and in some instances death even following its employment, and even when it produced its effects after the most to be desired fashion, that its taste and odour hung about the patient for days after its employment. The attention of the members of the profession in all parts of the world was therefore at once actively engaged, with the view of discovering a safe and effectual substitute for it; the honour of this, one of the most important discoveries of modern times, fell to the lot of Sir James Y. Simpson, of Edinburgh, who, in November, 1847, ascertained that chloroform possessed the desired properties.

“The vapour of chloroform, when inhaled in quantity not exceeding that evolved by half a drachm, produces a feeling of fulness in the head, dizziness, and partial loss of consciousness, with usually pleasurable sensations: the effects varying according to individual temperament, but in all they more or less resemble semi-intoxication. If the quantity inhaled be augmented, total insensibility is quickly produced, usually in from thirty seconds to two minutes, in some instances the patient going into a state of profound insensibility in the most imperceptible manner possible without the slightest trouble to the person administering it, but in the majority of cases, and especially so in robust individuals, a period of excitement precedes the anæsthetic stage, laughing, talking, struggling, &c. The patient frequently talking in foreign languages, but never in any instance to my knowledge, not even in that of the most abandoned characters, making use of obscene language. The stage of insensibility is marked by slight stertorous breathing, muscular relaxation and fixing of the eyes, which are generally turned upwards with their pupils slightly contracted, unless, indeed, the effects of the chloroform have been pushed to an extreme, unnecessary, and undesirable extent, when the pupils become dilated. If the inhalation be now stopped, perfect consciousness will be restored usually in from five to six minutes, the individual recovering without any remembrance of what had taken place, and in the majority of instances without any unpleasant after consequences; occasionally, however, the patient will complain of slight giddiness and headache, which, however, rapidly disappear. The circulation is somewhat affected during the induction of anæsthesia, at the commencement of the inhalation being increased both in volume and frequency; but as the effects of the chloroform are more fully developed, the strength of the

pulse becomes generally diminished, while its frequency is still slightly increased, though not nearly so much so as in the earlier stages of the inhalation. The anæsthetic condition may be kept up for hours with impunity, as is often done in parturient females, by a cautious continued use of the inhalation.

“ The therapeutical applications of the inhalation of chloroform are sufficiently manifest, its effects being so fully explained above ; but the purposes for which it is specially used require to be shortly noticed, namely, the prevention of pain during surgical operations, the alleviation of pain during paroxysmal attacks of it in disease, and in child-birth ; so that we can advantageously consider its employment under these three heads—its *surgical*, its *medical*, and its *obstetrical* value. At first much opposition was given to the employment of anæsthetic agents for the induction of insensibility during surgical operations, and the occurrence of an occasional fatal case, even where chloroform had been administered with all due precautions, still affords its opponents an argument against its use ; but the magnitude of the boon conferred is so great, and the proportionate risk of ill effect so small, that it is now used almost universally by surgeons, and by some even in the most trivial operations, in which, however, I conceive its employment is as unjustifiable as it is uncalled for—the great majority of fatal cases occurring during its administration having taken place where chloroform has been exhibited to relieve the pain of some trifling operation, such as tooth extraction, &c. Why this should be so, is, I believe, explained by the fact of sufficient attention not having been paid to keeping the patient in the recumbent posture during its administration. There is one class of operations, the reduction of dislocations, in which it not only prevents pain, but by its relaxing effect on the muscular system removes all difficulty in the reduction, so that the complicated apparatus of compound pulleys, &c., is very rarely indeed required. In the reduction of strangulated hernia, it is an important item in the *taxis*, and when employed as such, in case of failure should only be a preliminary step to operation, the surgeon at once proceeding to relieve the stricture, without allowing the patient to recover from the state of anæsthesia, inasmuch as it is manifestly uncalled for to subject the patient to a second risk from the administration of chloroform ; and in the introduction of a catheter in spasmodic stricture, its relaxing effects are also especially advantageous. In operations about the mouth and nose only does the production of anæsthesia seem to be contra-indicated, and this depends on the danger that might result from the flow of blood into the air-passages during the insensible state of the patient. But with proper precautions even under these circumstances, its use is attended with the greatest advantage. I have on more than one occasion administered it to patients undergoing operations for the removal of the upper jaw, keeping them for forty or fifty minutes in a state of complete unconsciousness, without any unpleasant consequence ensuing.



“In the practice of medicine chloroform has been employed with the view of producing anæsthesia, with varying, but for the time most favourable, results in the treatment of tetanus, delirium tremens, hysteria, chorea, neuralgia, and such like painful affections, and in relieving the exacerbations of pain in cancer and other malignant diseases; it has also been had recourse to in hydrophobia, but although the spasms and suffering are thereby temporarily alleviated, no decided impression is made on the fatal progress of the disease. We occasionally meet with cases of intense pain, where the suffering is so great as to prevent anodyne medicines developing their beneficial effects. In such cases the exhibition of the vapour of chloroform arrests the pain, and admits of time for anodyne to act. In such cases I have frequently succeeded in procuring for the sufferer several hours of comfortable sleep, by first giving a full dose of opium, and then controlling the pain by the anæsthetic action of chloroform. In relieving the agony attendant upon the passage of gall-stones, as also of renal calculi, I know of no medicine so valuable. In a case of hay asthma I have seen the access of the attack kept off by constantly smelling chloroform, which the patient carried about with him for the purpose; and in hooping-cough I have very frequently indeed seen good results follow its inhalation; a few drops are to be placed in the palm of the nurse’s hand, and the little patient allowed to breathe it; in a few moments its beneficial action will be evidenced. In laryngismus stridulus a similar proceeding is attended with the happiest results.

“It is, however, to the use of chloroform in midwifery that most opposition has been given, and since it was first employed by Sir James Simpson, a fierce controversy has raged between obstetrical practitioners on the subject, the opponents founding their objections upon two grounds—medical and scriptural—stating with reference to the first, that, in addition to its other possible ill effects, it predisposes to hemorrhage after delivery; and, with reference to the second, that pain is laid down by the law as woman’s penalty for original sin. Scripture authority, however, has been brought to bear on both sides of this latter question. But as I am not myself a practitioner in midwifery, and consequently cannot speak from personal experience, nor yet a theologian, I wish merely to deal with facts. In Edinburgh chloroform is employed—to speak in general terms—in *every case* of labour, natural or preternatural, and with safety to both mother and child, its anæsthetic effects being pressed during the pains, and withheld during the intervals; while the opinion of the majority of accoucheurs in this and most other large cities, as far as I can judge from what has been written on the subject, is well expressed in the following extract from the third edition of Dr. Churchill’s *Midwifery*:—As to its exhibition in *natural labour*, as I do not believe that in the large majority of cases convalescence is at all impeded by the suffering, I cannot see the necessity, or even the propriety, of urging the employment



of anæsthesia in every case; and I do feel that even greater caution ought to be used than in operative midwifery. We may be justified in running some risk when an important point is to be gained, such as perfect quietness during an operation, which we should not be justified in incurring merely to relieve pain. The most recent authority on the subject, Professor Sinclair, in an able paper in the seventy-fifth number of the *Dublin Quarterly Journal*, thus records his opinion:—‘In fact there exist three opinions on the subject, namely:—Firstly, that it should be given in all labour cases; secondly, that it should be administered only in certain selected cases; and thirdly, that it should never be given at all. Prejudice, may, of course, influence each section of opinion; to me the middle course appears to be the one most consonant with reason. To assert that because the indiscriminate administration of chloroform in obstetric medicine has sometimes proved dangerous or even fatal, it should be therefore excluded from obstetric practice altogether, is simply to argue against its use from its abuse.’ ‘Now, although amongst the facts here recorded not one fatal accident from chloroform can be found; though it cannot be said that mortality was increased in any way by its means; or that disease, on account of its exhibition, was rendered more rife, or convalescence prolonged; though evidence sufficient cannot be obtained, from the perusal of these observations, to cause its utter condemnation and expulsion from obstetric practice; still, in my opinion, sufficient *can* be gleaned to enable us to come to the conclusion, that the indiscriminate exhibition of chloroform vapour in labour cases should be abandoned, and that it should never be given in labour purely natural, or nearly so. It is true that out of all the cases Dr. Johnston and I have recorded, derived from our hospital experience, but on two or three occasions did symptoms sufficiently alarming occur to cause us to desist in its administration; and it is equally true that from out of my own private practice I can adduce but two cases strongly contra-indicating it; still these two, taken alone, are quite sufficient, in my opinion, to sever chloroform from its much too intimate connexion with natural labour.’ It is right, however, to add, that in no instance has a fatal result followed the inhalation of chloroform in midwifery practice. With reference to what, after all, is the most important portion of the question, its tendency to favour flooding after delivery, Dr. Beatty, with many other authorities, entertains no doubt but that it is open to this charge; he has shown us, however, how we can divest it of this serious drawback (by preceding its use with that of ergot of rye) in his valuable *Contributions to Medicine and Midwifery*, p. 190.

The circumstances generally taken into consideration as *modifying the action of chloroform* are age, strength, and disease. Of these it may be stated that the younger and the older the patient is, the more likely is he to prove amenable to the influence of chloroform. In this instance, as

in many others, extremes meet; at these ages we rarely read of fatal cases, and this statement also holds good as to strength. The debilitated and weak, either in consequence of age or disease, bear its administration better than the robust, whilst so far as disease is concerned, my experience (now a rather extended one) agrees with that of Snow—that no matter whether it be disease of brain, lung, heart, or of the large blood-vessels, if its administration be required by the emergency of an operation, a fatal result is less likely to follow its administration than from the shock under such circumstances of a capital operation when the patient is not under its influence. In cases of suspected weak heart, its anæsthetic employment should always be preceded by the administration of some alcoholic stimulus;—a most valuable practical hint for which the profession is indebted to my friend, Mr. Fleming, of this city. In addition to these, however, other circumstances require consideration; one of these which modifies the action of chloroform has not hitherto been alluded to, for the simple reason that the contingency requiring its consideration does not frequently arise. I allude to the influence that habit might exercise over its power of inducing anæsthesia. In one case which was under my care this question was to a certain extent solved; it was that of a lady dying in excruciating agony of cancer of the uterus; the only medicine that could relieve the intensity of her sufferings was the inhalation of chloroform, of which at last her constitution got such a tolerance that she consumed daily from 12 to 16 ounces. That some was wasted may be admitted, but the amount of waste was reduced to a minimum by the employment of Skinner's pipette and mask. The other circumstance modifying the anæsthetic action of chloroform, the influence exercised by race, deserves special consideration. It had been long observed that race to a certain extent modifies the action of medicines, but up to the present, so far as I am aware, no observations have been placed on record in connexion with chloroform upon this subject; therefore I feel peculiar pleasure in submitting for my readers' consideration a *resumé* of the careful observations of so acute an observer as Dr. Lyons, of this city, upon this point. As the result of a wide experience in the Crimea, where it will be remembered he was pathologist in chief to the British forces, Dr. Lyons specially remarks on the very great variety which appears to be observable in regard to the readiness or the contrary with which the system lends itself to the influence of chloroform, partially due to individual idiosyncrasy, and on a larger scale probably to national peculiarity of nervous temperament. Thus some persons will be found to sink quickly and silently into the anæsthetic state, while others first exhibit a condition of high excitement, with wild and occasionally furious gesticulations and efforts to free themselves from all control—shouts, curses, and every species of angry vociferation being exhibited in one set of cases, while in another, rambling, silly, and incoherent attempts at narrative, description

or conversation, intermixed with peals of laughter, mark the stage of excitement. A return to the use of a native though long unused patois or language is a characteristic often noticeable. Taken in order of susceptibility the Turks and the Russian prisoners, gentle and docile to a degree little in keeping with the popular notion of the wild soldier of the fierce Tartar horde, quickly and readily inhaled the soothing vapour, and with hardly an exception fell silently, in the space of a few minutes, into a state of complete and profound anæsthesia, which lasted till all the stages of the most formidable capital operations of the field were fully completed. In the Russian, then, it may be stated the exhibition of chloroform was immediate in its effects, entirely and perfectly successful in annihilating all sense of pain, and operations, however difficult, were facilitated and expedited. The phlegmatic, blue-eyed, fair-haired Englishman, of Saxon type, next deserves mention. His susceptibility to chloroform was not so quickly exhibited nor so quietly accomplished as in the case of the Russ; but yet in general the vapour was borne without struggles against its inhalation, anæsthetic sleep was induced after a moderate interval, and was usually complete to the end of the operation. The Sardinian may be stated to occupy an intermediate place between the ready susceptibility of the Turk, the Russ, and the Saxon Englishman, *pur sang*, on the one hand, and the more vivacious, mercurial, and nervously excitable temperaments of the French and Irish specimens of the great Celtic brotherhood. Resistance to inhalation, with more or less occasional excitement in gesture and language, marked the exhibition of chloroform in the North Italian, but was never so extreme or attended with such violent demonstrations and such infinite trouble to the operator as in the French or Irish. In the French, of whom the agile Zouave might be taken as a type, the inhalation of the vapour was very often resisted after the first effort or two, a stage of struggles with wild excitement, rambling, incoherent, and boisterous talk, often in patois, with shouts, laughter, or curses, very frequently ensued, and it was not till after a protracted interval that anæsthesia was finally induced, and then was hardly ever so profound or so prolonged as in the Turk, the Russ, or the Englishman. It is to the Hibernian Celt, however, that we must refer for the most marked exhibition of all the phenomena of chloroformic excitement, and its wildest demonstrations. Inhalation was stoutly resisted, and when partially effected, soon gave evidence of its exciting and intoxicating effects by furious struggles, curses 'both loud and deep,' anger in one case, risible excitement in another, and finally a voluble outpouring of the native Irish marked by the rich brogue of the southern, or the harder clang of the northern Irishman. The amount of time consumed in such cases before the patient was reduced to a condition of anæsthetic quiet was in many instances very great, and became the source of infinite



trouble, but what was of far more consequence, entailed irremediable suffering and loss of life on those whose wounds could not be attended to in time. The Scotch Celt exhibited in but a partial degree the excitement so marked in his Irish brother. The duration of this stage of chloroform intoxication varies much, and is sometimes prolonged to a period that, as Dr. Lyons observes, renders the employment of the drug a serious drawback to the comfort, if not to the safety to life of other sufferers, when as in time of war many have to be operated on, and the number of surgeons and assistants is limited. It is questionable whether under such circumstances chloroform should be employed at all. Dr. Lyons states that after the memorable engagements which terminated in the fall of Sebastopol, the time necessarily consumed in the administration of chloroform led to the loss of many lives, in the cases of individuals whom it was found impossible to operate upon within the period in which primary amputation is admissible.

“ If poisonous symptoms ensue on the *internal* use of chloroform, they should be at once met with the administration of emetics and stimulants; this, however, is a rare occurrence. They generally supervene on its exhibition as an *anæsthetic* agent, and may be suspected on the supervention during its administration of heavy, stertorous, interrupted breathing, dusky livid hue of countenance, and intermitting faltering pulse. On the moment the chloroform should be removed, a free current of air admitted, the tongue drawn forward, and, if necessary, artificial respiration and the electro-magnetic current should be had recourse to. The following remarks of Dr. Snow are so pertinent that I introduce them here :—Such measures as dashing cold water on the patient, and applying ammonia to the nostrils, can hardly be expected to have any effect on a patient who is suffering from an overdose of chloroform; for they would have no effect whatever on one who has inhaled it in the usual manner, and is merely ready for a surgical operation, but in no danger. I have applied the strongest ammonia to the nostrils of animals that were narcotized by chloroform to the third or fourth degree, and it did not affect the breathing in the least. They recovered just as if nothing had been done. It is difficult to suppose a case in which the breathing should be arrested by the effects of chloroform whilst the skin remained sensible, yet it is only in such a case that the dashing of cold water on the patient could be of use. There is, however, no harm in the application of this and such like means, provided they do not usurp the time which ought to be occupied in artificial respiration; for this measure should be resorted to the moment the natural breathing has entirely ceased.

“ *Dose and Mode of Administration.*—*Internally* in the fluid form, min. v. to min. xxx. suspended in water by means of mucilage of gum acacia, or of gum tragacanth, or of Irish moss as proposed by the late Professor Osborne, but which does not answer as well as either of the gums. In



consequence of the volatility of chloroform, it should be always prescribed in drougths. *Anæsthesia* is usually produced by the inhalation of the vapour emanating from f3j. to f3ij. It is effectually and safely administered in the manner first proposed by Sir J. Y. Simpson, namely, by pouring the chloroform into the hollow of a handkerchief folded in the form of an inverted cone; at first f3ss. only should be used, and if the desired effect be not produced in about two minutes, the same quantity may be renewed. Various forms of *inhalers* have been proposed for the administration of the vapour of chloroform, but I must confess that I prefer the simple handkerchief, or the form of inhaler recommended by Dr. Skinner, of Liverpool, which, after all, is but a convenient modification of the handkerchief, and which allows the thorough admixture of atmospheric air with the vapour; his plan of dropping the chloroform from a bottle by means of a pipette is, in my opinion, a vast improvement; this is the way in which I have invariably administered chloroform latterly for anæsthetic purposes. The chief points to be attended to are—1st. That the patient should be lying on his back with the head slightly raised. I have designedly put this point first, as I consider the recumbent position a *sine qua non* for the safe exhibition of chloroform. Should the necessities of the operation require the patient to be sitting up, he should be first anæsthetized in the recumbent position, and then be raised up to any required extent. 2nd. That he should be permitted at first to breathe atmospheric air freely mixed with the chloroform, which is effected by at first only dropping a few minims through the pipette on the Skinners' inhaler, which, as the anæsthesia is developed, can be increased in number, and by not bringing the chloroform too close to the mouth and nose at once. At this period the party administering the chloroform should bear in mind the effect temperature has in modifying the amount of vapour of chloroform that the atmospheric air will take up. At 60° F. an atmosphere *half* saturated with chloroform vapour will contain 6 per cent. of chloroform vapour, whilst at 80° F. an atmosphere half saturated with chloroform vapour, will contain 13 per cent., or more than double the amount of chloroform vapour (see p. 495). 3rd. That the vapour should be altogether withdrawn as soon as insensibility is produced, which is usually evidenced by the occurrence of slight stertorous breathing, for this condition can be kept up for any length of time that may be requisite, by the occasional reapplication of fresh chloroform on the handkerchief or inhaler. 4th. That the patient's stomach should be empty when the inhalation is commenced, as otherwise vomiting is apt to be produced; we can secure this point by directing the last meal to be given some three or four hours previous to the exhibition of the chloroform; should unfortunately emesis occur during its exhibition, the patient should be turned on his side, and his mouth directed downwards so as to facilitate the ejection of the contents of

the stomach, otherwise a portion of the vomited matter might get into the windpipe and produce speedy death by asphyxia. 5th. That in public operations, as in hospitals, the patient should, if possible, be anæsthetized before being introduced into the theatre; the excitement consequent on facing a crowd frequently opposing the successful administration of chloroform. In all cases the party administering the chloroform should devote his entire and undivided attention to his patient. From inattention to this point, more than once have I seen a patient's life jeopardized. Every article of clothing (tight strings, &c.) that would embarrass the patient's breathing should be removed; on no account should any pressure on the chest or abdomen be permitted; and perfect silence should be enforced during its exhibition; this, however, need not prevent us allowing the patient himself to talk, inasmuch as encouraging him to talk facilitates his coming more rapidly under the influence of the chloroform, a fact first pointed out to me by my colleague, Dr. Wharton. There is but one other remark which I have to make to those inexperienced in the use of chloroform, namely, that during the process of inhalation, just before insensibility is produced, there is usually a struggle on the part of the patient; *this must be resisted, and the chloroform kept just at the time closely applied to the mouth and nostrils.* In surgical operations, as a ready means of ascertaining when the patient is sufficiently insensible to permit an operation to be commenced, Dr. Snow employs as a test, touching the ciliary edge of the eyelids, and when this does not occasion winking, then the insensibility is sufficient. In the United States of America, a mixture of three parts of ether and one part of chloroform, is ordinarily employed to produce anæsthesia, which it is said to do effectually and without risk; to this mixture, however, Snow objects, that in consequence of the greater volatility of the ether over the chloroform, we have a most objectionable compound—the ether first producing its effects, and subsequently, at the most dangerous period of the anæsthesia, the chloroform coming into play. M. Bourguignon has recently proposed to substitute the vapour of ether for that of chloroform, to keep up the state of insensibility as soon as anæsthesia is produced by the latter. For *external* use the chloroform liniment of the Pharmacopœia answers admirably, one part of it mixed with three parts of the belladonna liniment, forms an admirable embrocation for lumbago and other muscular pains; or from min. xx. to fʒj. may be added to ʒj of some direct mild ointment. Dr. Hardy, of this city, has proposed the direct application of the vapour of chloroform in painful affections, especially those of the uterine organs, from its use in which he has seen much benefit result; for this purpose he has invented an ingenious but simple instrument. (See *Dublin Quarterly Medical Journal*, vol. xvi., page 306.)

Dr. Macnamara is himself no mean authority on the subject of

Anesthetics, and, therefore, we regret that he did not extend his observations relative to these agents to the various chlorides of carbon which have lately been proposed as substitutes for chloroform. In the next edition we hope to see an entire chapter devoted to the subject of Anesthetics, for they must surely be regarded as something more than "sedatives or contra stimulants."

We have, so far, only complimented the author for the creditable manner in which his part of this work has been executed; but we cannot conclude without a word of praise in favour of the printer and publishers. A remarkably clear, well-faced type, very white, smooth, and highly-finished paper, and extremely neat binding, go far to make this large volume as attractive to the eye, as Dr. Macnamara's labours have rendered it interesting to the intelligence of the reader. We are quite satisfied that the work will have a circulation even more extensive than that attained by any former edition; and it gives us sincere pleasure to learn that it has been made one of the class books officially recommended to the medical students of the University of Dublin.

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*On State Medicine in Great Britain and Ireland.* By HENRY W. RUMSEY, M.D., F.R.C.S., &c., Lond. 1867. Pp. 58.

To render truly valuable the knowledge obtainable from medical registration, both of death and sickness:—to bring the full benefit of medical knowledge to bear upon coroner's inquests and to elucidate, in a recognized manner, all investigations of a medico-legal nature—and to erect into a special machinery, for the prevention of disease, the various resources within the present and daily increasing knowledge of the profession—in short, to hold out inducements to competent medical men to fulfil the triple duties of medical investigation, and registration of sickness and death, of medical jurist, and that no less important branch of our profession, hygiene, is the object which Dr. Rumsey has ably undertaken to show the importance of; and we congratulate him on his work, and the valuable assistance he has obtained from the sanction of the British Medical Association.

With the name of Dr. Rumsey we would associate those of Dr. Farr, Mr. Ransome, Dr. Symonds, and others, who have laboured to bring medicine into that just relation to the state, that it merits, and that the best interests of the community require.

We will not deny that Ireland derives much benefit from the machinery of her medical charities, but much remains undone. The dispensary medical officers offer a system of organization available for the prevention of disease, unsurpassed, if not unparalleled, in Europe; yet not only does the country not avail itself of their services for this most important service, and hold out the inducement of suitable recognition and pay, but it permits those members of the public service who do offer suggestions for the improvement of the sanitary, and, therefore, of the moral and social condition of the humbler classes, to be subjected to the hostility of prejudiced persons, who, in some instances, have actually succeeded in depriving meritorious officers of their posts, inflicting a serious loss upon the community, and permitting incalculable evil to the sick poor, as well as preventing other officers from exerting themselves in behalf of those whom the state should care for, not only on principles of humanity and morality, but of policy.

Since the foregoing was put in type a copy of the following extract was sent to each Dispensary Medical Officer in Ireland; from it, as it will be seen, the Legislature places highly responsible additional duty upon him without "fee or reward." This important service, attended with no small personal risk, as well as with frequent heavy calls upon the Dispensary Medical Officer's time, will be all the more felt by him, inasmuch as it is to private practice he must look for emolument, rather than to the very small remuneration he receives at present for his already most onerous and trying duty. We trust, however, that the authorities will reconsider the case of their Dispensary Medical Officers, and grant them a scale of pay commensurate with the attainments they are required to possess, and the amount of duty, responsibility, and danger encountered by them:—

*"Copy of the 10th Section of the Act 30 & 31 Vic. c. 118.*

"From and after the First day of *January* One thousand eight hundred and sixty-eight whenever any Person shall be brought before any Two Justices of any County, County of a City, County of a Town, City or Town, and it shall be proved to their Satisfaction that such Person was discovered and apprehended under Circumstances denoting a Derangement of Mind, and a Purpose of committing some Crime for which, if committed, such Person would be liable to be indicted, the said Justices shall call to their Assistance the Medical Officer, or if there be more than One, the nearest available Medical Officer of the Dispensary District in which they shall be at the Time, and if there shall not be any such Medical Officer available, then the nearest available Medical Officer of any neighbouring Dispensary District, who shall examine such Person without Fee or Reward; and if such Medical Officer shall certify that such Person is a dangerous Lunatic or a dangerous Idiot, it shall be lawful for the said



Justices, by Warrant under their Hands and Seals, to direct that such Person shall be taken to the Lunatic Asylum established either wholly or in part for the County, County of a City, or County of a Town in which he shall have been apprehended ; and every such Person shall remain under Confinement in such Asylum, and be there maintained, in like Manner and subject to the same Conditions as if such Person had been removed from any Gaol to such Asylum by virtue of the Warrant of the Lord Lieutenant under the Provisions of the recited Act of the First Year of Her present Majesty, Chapter Twenty-seven : Provided always, that nothing herein contained shall be construed to restrain or prevent any Relation or Friend from taking such Person under his own Care and Protection if he shall enter into sufficient Recognizance for his or her peaceable Behaviour or safe Custody before Two Justices of the Peace, or the Chairman of the Court of Quarter Sessions of the County in which such Person shall be confined, or One of the Judges of Her Majesty's Superior Courts at *Dublin*."

We will conclude this brief notice by referring our readers to the work of Dr. Rumsey, and now append the resolutions adopted by the British Medical Association in August last.

*Resolutions adopted by the Association, August 7, 1867.*

I. " That the Association desires to express its decided approval of the plan proposed by Dr. Farr ; namely, the appointment of a registration medical officer in every registration district or group of districts, with medico-legal and sanitary functions, and pledges itself to support that measure, as the initiative step to a national organization for purposes of of state medicine.

II. " That the Committee of Council be instructed to direct their early or special attention to the amendment of the sanitary laws ; to invite the co-operation, for this end, of the Council of the National Association for the Promotion of Social Science ; and to urge the Branches of this Association to promote the same important object by local efforts, by representation to individual Members of Parliament, and, if need be, by deputations, to Her Majesty's Government.

III. " That a Committee be appointed<sup>a</sup> . . . to collect information, in such manner as they may think best, on the subjects brought before the Association by Dr. Rumsey ; and that the Committee of Council be empowered to make such pecuniary grant as the funds of the Association will permit towards the expenses of this inquiry."

<sup>a</sup> COMMITTEE.—Dr. Acland, F.R.S., *Chairman* ; Dr. Burke, Dr. Falconer, Dr. Gairdner, Mr. Earnest Hart, Dr. Lankester, F.R.S., Dr. Mapother, Dr. J. E. Morgan, Dr. G. H. Philipson, Mr. Ransome, M.B., Dr. Tindal Robertson, Dr. Rumsey, Dr. Symonds, F.R.S., Ed., Dr. A. T. H. Waters ; Dr. A. P. Stewart, *Hon. Secretary*.

## PART III.

### MEDICAL MISCELLANY.

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*Reports, Retrospects, and Scientific Intelligence.*

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#### TRANSACTIONS OF THE MEDICAL SOCIETY OF THE KING AND QUEEN'S COLLEGE OF PHYSICIANS.

*Multiple Abscess of the Liver—Evacuation by Puncture at the Epigastrium—Subsequent Irruption into the Pleura—Paracentesis, with Introduction of Drainage-Tube—Death.* By THOMAS HAYDEN, F.K.Q.C.P.I., Physician to the Mater Misericordiæ Hospital.

(Read before the Medical Society, Dec. 18, 1867.)

FRANCIS WEBER, of German extraction, aged forty-four, was admitted into the Mater Misericordiæ Hospital June 26, 1867; had served twenty-one years as a soldier in the Presidency of Bengal, whence he returned to Ireland eighteen months ago.

Some months after arriving in India he had brain-fever, but, with this exception, had suffered no serious illness whilst there; had been liable to bilious attacks whilst in India, and since his return to Europe has been frequently "bilious."

About three weeks prior to the date of admittance he experienced a general and indescribable uneasiness in the region of the stomach, and in the back and shoulders; and a week subsequently he observed a prominence in the epigastrium; since then he has had frequent chills, but no regular rigor.

When admitted he was slightly icteric, thin and weak; the pulse was slow and feeble; bowels confined; he perspired at night, and lay only on his back; a prominence existed in the epigastrium, which was dull on percussion, as was likewise the surface to an extent of two inches below; tender, soft, and yielding to firm pressure, whilst above and to the right of this prominence the feeling yielded was that of a hard and solid body; the inferior right costal cartilages were pushed out, and hepatic dulness was extended upwards about two inches on right side, and in middle line.

From day to day the epigastric prominence increased in size, and yielded stronger evidence of the presence of liquid. On the 3rd July satisfactory evidence of adhesion to the abdominal wall having been obtained, and the liquid contents of the tumour having approached quite near the surface, a puncture was made with a sharp straight bistoury, and about a quart of grumous pus, mixed with some dark blood, was discharged.

As a means of evacuating the abscess, and subsequently of obliterating its cavity, a binder was previously applied, as in the operation for ascites.

For some days prior to the puncturing of the abscess the patient had been perspiring profusely; was weak, and required a sedative to procure even a short sleep; he had been taking a pill three times daily, consisting of extract of taraxacum, dried soda, and blue pill, in equal proportions. Nitro-hydrochloric acid was subsequently given in infusion of chiretta, eight ounces of wine and four of brandy were taken daily, and strong beef-tea with bread crumb for diet. The daily discharge from the opening made in the epigastrium was very considerable, of a dark flaky character, and gushed from the wound when the patient coughed. The right hypochondrium, which, previously to the performance of the operation, was remarkably prominent, subsided to its normal level; the tongue became clean, and the appetite and sleep improved. Such was the patient's condition on the 13th July. At four o'clock on the morning of the 14th he was suddenly attacked with acute pain in the lower portion of the right side, which deprived him of sleep. When visited on that morning he was suffering from sharp stabbing pain in the right side, which he referred to the infra-mammary and lower lateral regions on making a full respiration. This side was dull to within an inch of the nipple, and to the same extent vocal fremitus was absent; a loud friction sound existed laterally below the level of dullness; pulse 102, and sharp; *abscess discharging freely through wound.*

The diagnosis was at once made, of irruption into the pleural cavity, of an abscess distinct from that which had been opened in the epigastrium. The latter portion of the diagnosis was based mainly upon the continuance, in undiminished quantity, of the discharge from the abdominal puncture; to have one grain of calomel and three of James' powder every alternate hour; the side to be cupped in the seat of pain to three ounces, and subsequently covered with a warm poultice.

July 26.—Last night Dr. Curran, who was doing temporary duty for the Resident Clinical Assistant, Mr. Finnegan, was hastily summoned to Wëber about two o'clock, and found him struggling for breath, bathed in perspiration, and all but pulseless; the extremities were cold and clammy. Dr. Curran administered a stimulant draught, and the patient rallied. On making my morning visit I found him pale and haggard-looking;

pulse 132, and weak; respiration 36, and laboured; surface cold and moist, and the sheets, which only a few hours previously had been put on to replace others saturated with perspiration, were also quite wet from the same cause; urine free from bile; no jaundice; lower portion of right side was projected, and nearly motionless; intercostal spaces obliterated; dulness extended upwards to within two inches of the clavicle, and to the same extent vocal vibration was abolished, and respiratory sounds were absent, save by transmission; beneath the clavicle resonance was somewhat metallic; and here there was thoracic movement, and respiration was bronchial; dulness extending horizontally only to right margin of sternum; heart aching tumultuously. A large aperture, readily admitting the finger, had been formed by a process of sloughing in the site of the wound in the epigastrium, from which a flaky, ichorous matter was freely discharged, and when the patient coughed, burst forth with considerable force. Since last report cupping has been repeated with the view of alleviating pain, and blisters have been applied to the side; brandy has been given to amount of 10 to 12 ounces daily; there has been irritability of stomach, to allay which hydrocyanic acid was given with good effect.

Being apprehensive that the patient might die of asphyxia in the course of the ensuing night, if not relieved by paracentesis, I decided upon the operation, and had the advice and assistance of my colleague, Dr. Cruise, who agreed with me as to the urgency of the case, and the necessity for operative interference. The operation was performed at four p.m., as previously arranged, and in the following manner:—An incision was made through the integument and muscles in the seventh intercostal space, a short distance in front of the angles of the ribs, and through this a capillary trochar and canula were introduced. On withdrawing the trochar some dark brown serum escaped; and after a few seconds this became mixed with flakes of pus. It was at once decided to introduce Chassaignac's drainage-tube, which was accordingly done, with some difficulty, by means of the usual instrument, the counter opening being made also in the seventh intercostal space, about two inches in front of the primary wound.

A considerable discharge of pus took place through the tube; the patient felt relieved by the operation, and passed a comparatively good night; he took stimulants and light nourishment freely; perspiration was checked; respiration was less embarrassed; and the superior limit of percussion-dulness had descended an inch and a half on the following day; *but with this exception the percussion and stethoscopic phenomena remained unaltered*; the discharge from the drainage-tube was limited, and entirely purulent.

The relief obtained from the operation was only temporary, and on the second day succeeding the patient began to sink, and died of asthenia at



2.20 p.m., on the 30th July, *i. e.*, four days after the date of performance of the operation. The body was examined on the following morning. A large quantity of dark brown serum was found in the right pleural cavity, mixed inferiorly with thick, flaky pus; the mediastinum was pushed to the left, and the liver, covered by the stretched and attenuated diaphragm, projected into the thorax nearly to the level of the second rib; the lung was forced by the pressure of the liver, and of the liquid effusion, into the superior and posterior portion of the pleural cavity, and its apex was firmly attached to the cone of the pleura. There was likewise considerable serous effusion into the pericardium, and to a less amount into the cavity of the peritoneum. The liver was greatly enlarged, weighing, when removed from the body, 7 lbs. 2 oz.; it was of a dark chocolate colour in a few places, but elsewhere of the natural tint; the right lobe was elongated vertically, and on its anterior-superior surface was an abscess capable of containing an orange; this abscess was bounded superiorly by the diaphragm, which was firmly attached to it, and attenuated to the consistence of a thin film composed only of its serous investments; through this abscess, including its serous coverings, the drainage-tube had been passed; the cavity of the abscess contained a small quantity of thick, flocculent pus; its walls were rugged, and no communication with it existed, save that through the drainage-tube.

Another abscess of much greater magnitude was found on the posterior thick edge of the liver, occupying the notch for the reception of the vertebral column, and projecting into the pleura; it was invested by the diaphragm much reduced in thickness; was full of curdy pus; fluctuating on the surface, and manifestly on the point of bursting into the pleura; it had no communication with the former.

On the lower portion of the anterior surface of the right lobe, near the thin edge of the organ, and occupying in part the notch for the round ligament, was a third abscess, not extending deeply into the liver, but communicating with the wound made in the epigastrium, now much enlarged by the process of sloughing; this abscess was the smallest of the three, and had no communication with either of the former; it must have been of much larger size when punctured, as it then yielded at least a quart of pus.

The interest which this case possesses has reference chiefly to the diagnosis. Previously to the performance of paracentesis it was impossible to determine accurately the height to which the liver ascended in the chest; this was due to the attachment of the lung to the upper portion of the anterior wall of the thorax, by which it was prevented from receding before the encroaching liver, and yielded fallacious evidence in regard to the superior limit of the latter. The occurrence of pleuritis with effusion, consequent, in all probability, upon the escape into the pleura of a portion of the contents of one of the hepatic abscesses

on the morning of July 14th, increased the height of percussion-dulness by still further compressing the lung; and when the liquid was removed by tapping, the comparatively small quantity discharged, and the descent of the level of percussion-dulness by an inch and a half only, and without collapse of the side, showed plainly that the liver occupied the greater portion of the pleural cavity.

The question as to the necessity for paracentesis having been decided affirmatively, it was impossible, by physical examination, to determine the proximity of the liver; or, in other words, to distinguish the hepatic dulness from that due to the liquid effusion. Nor is it at all certain that, however much the penetration of the abscess by the drainage-tube may have increased the apparent gravity of the operation, its danger was thereby in any measure increased; for the tube, by affording a ready channel of exit for the matter, prevented its escape into the pleura; and the transfixion of the diaphragm, reduced as it was to its serous coverings, could scarcely be regarded as a complication in a case otherwise so serious.

Owing to the penetration of the abscess by the instrument used for the introduction of the drainage-tube, it was impossible to determine with certainty from *post mortem* evidence, whether the pleuritis was caused by the escape of matter into the pleura, or by the irritation due to the pressure of the abscess, separated as it was from the pleura only by a thin film of membrane; for, assuming the abscess to have given way, the small opening so made might have been occupied by the instrument either in passing into or out of it; and the small quantity of matter found in the pleura might have escaped into it from the tube. Nor was it possible to decide whether the trochar used in puncturing the chest had entered the abscess, because the opening so made might have been likewise occupied by the larger instrument subsequently introduced. I feel warranted, however, in concluding that the matter had found entrance into the pleura previously to the operation, and that the trochar did not enter the abscess, by a consideration of the following circumstances, viz., the *sudden* occurrence of acute pain in the side on the morning of the 14th July, followed, within a few hours, by the signs of effusion into the pleura; and, secondly, the escape through the canula, first, of clear serum, and then of pus, an order of events which should have been inverted, had the trochar, in the first instance, entered the abscess.

Rouis, as quoted by Frerichs, states that of 50 cases which occurred in his practice in Algeria, in which the abscess had passed beyond the boundaries of the liver, 11 had evacuated themselves into the right pleura; and Moorehead observed 14 out of 140, or 10 per cent., to open into the lung or sac of the pleura. Frerichs remarks:—"Most cases where the abscess bursts into the pleural cavity, terminate fatally," and that, with few exceptions, multiple abscesses are fatal. Out of a total of

84 cases Moorehead found 49, or somewhat more than one-half, to be multiple.

The abscess on the anterior surface of the liver was firmly attached to the abdominal wall, and had approached quite near the surface before it was opened. Owing to the strong evidence of adhesion that existed, consisting in redness, pointing, and yielding on the cutaneous surface, and immobility of the tumour during forced respiration, no fear was entertained of escape of matter into the peritoneum, consequent on puncture. Adhesion of abscesses so situate is not of common occurrence. Drs. Graves and Stokes remark:—"From our own experience we are disposed to consider adhesions between the parietal and hepatic peritoneum, in cases of abscess in the convexity of the liver, as of rare occurrence; a circumstance which presents a remarkable contrast with their frequency in the thoracic cavity."

In regard to the thoracic complications, and the difficulties in diagnosis to which they occasionally give rise, Dr. Moorehead remarks:—"It is important to know that there may be empyema existing with hepatic abscess, not caused by communication, but merely by extension of inflammatory action through the diaphragm, in individuals prone to the suppurative process. It appears, then, that empyema from communication, or independent of it, is not an unfrequent complication, and it sometimes renders the diagnosis of hepatic abscess obscure; the signs of the empyema may be attributed to the encroachment of the liver on the chest, or, if rightly interpreted, they may throw a doubt over the previous diagnosis of hepatic disease."

Gangrene, to a considerable extent, occurred round the puncture in the abdomen: this is a very unfavourable prognostic. Out of 16 fatal cases of puncture, in the practice of Dr. Moorehead, gangrene took place in 13.

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## PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.<sup>a</sup>

Dr. GORDON, President.

*Bright's Disease of the Kidney with Cyst.*—DR. LITTLE exhibited the kidneys of a man who had died in the Adelaide Hospital, where he had been a patient for the five weeks preceding his death. He was a large pale, heavy, flabby man, 65 years of age. He was a teacher of languages, and his illness commenced, a month before his admission, with rigors after exposure to cold and wet. When admitted he was weak

<sup>a</sup> These reports are furnished by the Secretary to the Society.



and very much depressed, but the symptoms of which he chiefly complained were the following: severe pain across his loins, itchiness of the surface of the body, which was covered with a lichenous rash; and constant nausea, which sometimes produced vomiting. During the twenty-four hours after admission he passed 42 ounces of urine, which was smoky in colour, coagulable to one-third, of 1,010 sp. gravity, and was found to contain blood casts, free blood globules, and a large quantity of uric acid. Soon after he came into hospital the pain in the back ceased, but the lichenous rash continued, as did also the irritability of the stomach. There was urgent thirst, and the tongue and back of the pharynx exhibited the red, glazed appearance occasionally observed in the later stages of Bright's disease. After a few days the uric acid ceased to appear; in other respects the character of the urine underwent no change. Suppression, however, came on gradually during the last two days. The patient was a man of considerable intelligence, and was able to give a clear history of his case. He said that for 20 years he had been subject to similar attacks. His last illness had been in Edinburgh four years ago, and four years before that he had had an attack in London. On each occasion he had pain in the back, an itching rash over the skin, and great irritability of the stomach. There was no œdema, nor any indication of the nervous centres being affected by the disease: death took place by exhaustion. The kidneys were paler and larger than healthy kidneys—they weighed  $19\frac{1}{2}$  ounces, and presented a considerable number of cysts. Dr. Little considered it unnecessary to enlarge upon the mode of formation of these cysts. It appeared that they could not be formed in cases of Bright's disease which were steadily progressive, but probably were developed in cases where there had been successive attacks, each affecting only a portion of the kidney. Where the greater part of the secreting structure was implicated in the morbid process, death generally took place so early that there was not time for the dilatation of the uriniferous tubes into cysts. In such cases, moreover, the blood vessels of the gland were so extensively obliterated that they no longer conveyed to the Malpighian bodies blood enough to furnish the serous fluid, by the accumulation of which within the upper ends of the tubes whose extremities were blocked up, the dilating process seemed to be initiated. Remembering this man's history, it was not unreasonable to suppose that on each occasion when he suffered from these symptoms, namely, severe pain in the back, itchiness of the skin, and gastric irritation, he had an attack of Bright's disease, limited to a portion of the kidneys. Bright's disease was now admitted to be a constitutional affection, and he saw no reason why a small portion of the kidney might not be destroyed, just as in tuberculosis a small portion of a lung was often destroyed, and temporary arrest of the disease followed.—*December 7, 1867.*



*Enchondroma of the Hand.*—DR. BARTON exhibited a tumour which he had removed with part of the hand of a woman aged forty years. She was admitted into the Adelaide Hospital on the 30th of last November, and her hand presented the appearance exhibited by the cast taken at this time. A tumour occupied the inner part of the dorsum of the left hand, extending from a little below the wrist to the junction of the fingers and the metacarpal bones. The history was, that about nine years before, she first noticed a swelling in this position, not larger than a marble. This increased very gradually at first, but being a countrywoman, constantly engaged in laborious employment, she frequently struck and injured it. Every time it was injured in this way a swelling followed, which subsided to a certain extent. Yet, by the repeated injuries it sustained, the tumour made progress in size until six months ago, when it was not more than half the size which it presented on her admission to hospital. During the last six months it increased rapidly and changed its character, according to the account given by the patient. Up to that time it was hard, and, except when injured, painless. Now it increased in size, became soft at the apex, and was greatly more painful on being handled. On examination the tumour was found to project slightly into the palm of the hand in its inner aspect, and the two metacarpal bones of the little and the ring finger could not be made out distinctly, but appeared to be enclosed by the tumour. The feel of the tumour was fluctuating at the apex, but the base was excessively hard, particularly where it passed into the metacarpal bones of the little and ring fingers. The patient had pain upon pressure, but otherwise very little suffering from the tumour. The diagnosis seemed to lie between cystic disease of the bone, expanding its walls and forming cysts which contained fluid, and an enchondromatous tumour which had softened. On the whole it seemed likely that it was the latter. On making an exploratory puncture with a small trocar a few drops of blood, mingled with oil globules, only escaped. On the 11th, Dr. Barton removed the tumour with the ring and little fingers. He found it could be readily separated from the metacarpal bones of the middle finger. Dr. Barton then exhibited the tumour and described its pathological appearances. It was a remarkably good specimen of a softened enchondroma—the lower part, where it sprang from the metacarpal bones, was formed of cartilage, which showed, upon section, the peculiar bluish colour of fetal cartilage. The upper part of the tumour, where fluctuation had been distinctly felt before its removal, was formed of a reddish, soft, granular substance, resembling sago or tapioca, coloured with red wine. Under the microscope this structure showed numerous large oil globules and nucleated cells and blood discs.—December 14, 1867.

*Chronic Ulcer of Stomach, opening the Coronary Artery.*—*Cicatrices of former Ulcers.*—DR. STOKES exhibited the stomach of a patient who had

died from a chronic ulcer of the stomach, which had opened the coronary artery, and so caused death by hemorrhage. The subject of the disease was a very old woman who was admitted into the Meath Hospital some months ago. Her history was, that during the last three years she had suffered from three different attacks of great pain in the stomach. From the two first of these attacks she seemed to have perfectly recovered. She came into hospital complaining of extreme pain in the abdomen. When this was subdued she had an excellent appetite, and used an abundance of nourishing food. Without any premonitory symptoms she was suddenly seized with convulsions and died. Upon dissection the stomach was found to contain a vast quantity of blood, and a great deal had passed into the intestines also. On examining the stomach a very large ulcer was found situated upon the pancreas, the structure of the pancreas forming the basis of the ulcer, and at nearly the centre of the ulcer an artery of some size was found open. From this ulcerated arterial opening the blood had evidently escaped. Specimens of this exact termination of the same disease, Dr. Stokes observed, had on more than one occasion been exhibited to the Society, but a further interest existed in the present case in the cicatrices of two former ulcers being found, which may be fairly supposed to correspond with the different attacks of gastric pain from which this woman had suffered; and the interesting point in the case was the proof it afforded of the possibility of perfect cicatrization of ulcers in the stomach. Another point of interest was the manner of the woman's death, namely, by anemic convulsions, the same as we usually observe from any sudden and great loss of blood, such as the bursting of an aneurism or other such cause, and where the patients do not immediately die from syncope. Dr. Stokes considered that the principal interest of the specimen consisted in its proof of the reparative powers of nature in the healing of an ulcer in such an organ as the stomach.—*December 14, 1867.*

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## PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.<sup>a</sup>

### THIRTIETH ANNUAL SESSION.

DR. HARDY, President.

DR. SAWYER, President for the past Session, delivered an address on resigning the Chair.—*16th November, 1867.*

DR. M'CLINTOCK read a paper on the spontaneous elimination of uterine tumours (printed at p. 20).—*14th December, 1867.*

<sup>a</sup> These Reports are supplied by Dr. Geo. H. Kidd, Secretary to the Society.

*Chorea*.—The Secretary read the following communication on chorea, by MR. LAWSON TAIT, of Wakefield :—

After a somewhat lengthened examination of the literary history of this disease, I have come to the conclusion that to our great English physician Sydenham is due the credit of having first accurately described it, and separated it from the many other affections with which it was confounded; and that the name by which it is generally referred to by continental writers of last century—*Chorea Sancti Viti Sydenhamiana*—is deserved. “If a glass of liquor be put into the hand to drink, before the patient can get it to his mouth he uses a thousand odd gestures; for not being able to carry it in a strait line thereto, because his hand is drawn different ways by the convulsion; as soon as it has happily reached his lips, he throws it suddenly into his mouth, and drinks it very hastily, as if he only meant to divert the spectators.”<sup>a</sup> He limits the usual period of its occurrence to the interval between the tenth and fourteenth years. He thus describes a condition before unmentioned, and describes it as only a master could from direct observation. It is to be regretted, however, that he headed his paragraph on the affection with the title of “St. Vitus’ Dance,” as he has thus given rise to great confusion and no little contradiction among later writers, who confused his disease with the extraordinary state of matters then known on the continent by the various names of *Danse de St. Guy*, *Krubel-Krankheit*,<sup>b</sup> &c. That this morbid state was not that so graphically alluded to by Sydenham any one may satisfy himself by referring to the description of it in the *Anatomy of Melancholy*, which seems to have been taken from Horstius,<sup>c</sup> who, I think, has got it from some one else. Most writers on the subject, many of recent date, quote the description of the antics of the mad women at the chapel near Ulm and draw no distinction between them and the *Chorea Sydenhamiana*. Such convulsions were, I believe, nothing more than the exaggerated and epidemic hysteria which recurs now and again at intervals of several decades, in connexion with religious movements. We have had instances in this country within times not very remote in the celebrated Kilsyth and Cambuslang revivals, and in the epidemic of *Leaping-ague*, described in Sir John Sinclair’s Statistical Account, and by the late Mr. Crichton of Dundee. In 1751 we have one of the ministers who fanned the flame of the disease, lamenting that of the thirty thousand who had obtained grace by a convulsion but very few had remained steadfast to their sudden conviction. In 1796 an epidemic of this kind in Anglesea,

<sup>a</sup> *Schedula Monitoria*, p. 504, Swan’s edit. Bouillaud, probably from similar exhibitions, has given the affection the apt name of *folie musculaire*.

<sup>b</sup> Sennertus, *Institutiones Medicinæ*, Wittenberg, 1611.

<sup>c</sup> Horstius, *Op. Medicinæ*. Tom. ii., lib. viii., p. 105.



which had affected *twenty-five* women and one boy, was put an end to by the enforcement of the advice of Dr. Haygarth, of Bath, that the convulsed should be separated from all such as were at all likely to become so. Such a condition seems to have existed in small communities, more especially when shut off from more healthy excitement; and it has almost invariably been confined to the female sex. Professor Whytt has mentioned the frequent occurrence of such epidemics in the Shetland Isles, and Pennant has given interesting details of one in the island of Unst. It began by a woman being seized with convulsions in church, and spread so rapidly, and continued so long, that for years public religious services could not be conducted without interruption from this affection. Pennant naively states that it was considered by most *men* to be hysterical. In 1793, fifty years after its outbreak, it had become almost extinct, and its cure was attributed, by a clerical observer, "to a rough fellow of a kirk-officer who tossed a woman in that state, with whom he had been frequently troubled, into a ditch of water. She never was known to have the disease afterwards, and others dreaded the like treatment."<sup>a</sup> The more modern camp-meetings in America, and even, it is said, in some parts of Cornwall and Wales, sometimes present similar characteristics.

The *Malleatio* of Morgagni does not seem to me to describe any of the peculiarities of chorea, although many writers of authority have thought so. The patients which he and others<sup>b</sup> describe as constantly *hammering* with one hand on the other, or on the knee of the same side, do not seem to have been affected with Chorea Sydenhamiana. These would appear to be rather cases of brains diseased in some special manner to do special abnormal acts,<sup>c</sup> just as Brown-Séquard's rabbits twisted about under the operating needle; or, as Reil says, referring to eccentric movements:—"Should we not arrange those cases as slighter degrees of the same state, in which absurd ideas involuntarily occur to healthy people, incessantly incite them, and are accompanied by an irresistible propensity to action."<sup>d</sup> We are all familiar with the story of the poor man who was shot in a duel because he could not resist the inclination to finger the nose of another which was particularly sharp.

The *Scelotyrbæ* of Galen has been generally supposed to refer to chorea, and is used evidently by Sauvages with that significance. But the

<sup>a</sup> Rev. W. Jack, of Northmaven, Old Stat. Ac. Similar treatment stopped the fits in the venereal wards in Paris, when the women were "recovering from their mercury."

<sup>b</sup> In Crawford's article on chorea (Forbes and Conolly's Encyclopædia), a case of malleatio similar to Morgagni's is mentioned.

<sup>c</sup> The celebrated case at Oldham, published by Mr. Kinder Wood, was of this nature—it certainly was not Chorea Sydenhamiana, neither were the extraordinary cases described by Dr. Watt of Glasgow.

<sup>d</sup> Fieberlehre, Vol. iv., p. 626.



original description in the Galenic writings seems to me to point to an observation of progressive spinal paralysis (*ataxie locomotrice*) much rather than of chorea; and the definition of it as a disease, “*quâ erectus ambulare homo non potest*,” makes this almost certain. Had it been the chorea of Sydenham to which Galen referred, its frequency among children and the extreme rarity of the affection among adult males, would not have escaped his observation; besides, choraic patients have rarely any difficulty in walking or in walking erect, except in very severe cases, nor have they inability to guide themselves to the right or left, as in “*scelotyrbe*.” The term *scelotyrbe* seems to have been used by early writers with the most indefinite meaning. Sauvages,<sup>a</sup> quoting Pliny,<sup>b</sup> seems to refer under this term to the affection of the legs we see in cases of purpura. He says in another chapter, “*Nullus est autem morbus hodie cognitus, qui ad scelotyrbem referri queat quam chorea viti Sydenhamiana*.”

*Etiology*.—Sydenham has remarked—“This disorder is a kind of convulsion which chiefly attacks children of both sexes from ten to fourteen years of age.” This statement, which every author on the subject has most fully borne out, is one which does not apply to *malleatio*, *scelotyrbe*, or *danse de St. Guy* in the description of any author who mentions them. The following table shows the influence of age and sex in 501 cases.<sup>c</sup>

	Age.		Males.	Females.	Total.
From	1 to	4	4	2	6
„	4 „	6	2	4	6
„	6 „	10	46	103	149
„	10 „	15	58	193	251
„	15 „	20	7	65	72
„	20 „	30	—	12	12
„	30 „	40	—	—	—
„	40 „	50	—	1	1
„	50 „	60	—	3	3
	472		1	—	1
			118	383	501

It is shown here that Sydenham was as nearly right as he could be without the statistical examination of a mass of cases. During the period he gives for its most common occurrence, 251 cases of the 501 are to be found.

<sup>a</sup> Nosologia Methodica, Vol. ii., p. 563.

<sup>b</sup> Libr. xxv., cap. 3.

<sup>c</sup> The greater number of cases are taken from the following authorities:—Dr. Hughes, in Guy's Hospital Reports, Vol. iv.; Easleman's Statistics; Rufz on Choreia, Archives Generale de Medecine (cases in the Children's Hospital); and many scattered cases are taken from various books and papers.

<sup>d</sup> Case of a medical man recorded by Graves in the Medical Gazette, October, 1838.

Some authors have pointed out that different climates and seasons have different effects in the production of chorea. Dr. Bond, of Southampton, states<sup>a</sup> that it occurs more frequently in winter than in summer, and in northern than in tropical countries; and quotes Wicke and Hasse in support as giving 13 cases which occurred in spring, 12 in winter, 9 in autumn, and only 1 in summer.<sup>b</sup> He also states that the patients are generally young and females. Heberden and Elliotson agree in giving the ratio of 1 boy to 4 girls of children affected by chorea. In the table given above more than 3 girls were attacked for one boy from 10 to 15 years of age, and this proportion is very nearly the same in the mass of the cases. After 15 years of age there are 81 females to 8 males—a proportion of more than 10 to 1. Trousseau says that after 15 it is almost entirely confined to females. Some general statistics give the following results:—

	Males.	Females.	Total.
Hampshire Hospital,	6	12	18
“Norwich Hospital,	27	57	84
Dr. Manson, of Nottingham,	19	53	72
	<hr/> 52	<hr/> 122	<hr/> 174

The connexion between chorea and rheumatism is mentioned by authors of a much earlier date than is generally supposed. Hoffman<sup>d</sup> accurately describes chorea; and in one paragraph, somewhat obscure, seems to notice a statement of some other author, that there was some connexion between this disease and “*arthritis sic dicta vaga scorbutica*.” Morgagni<sup>e</sup> relates what must have been a fatal case of chorea in a young woman, aged twenty-six, while labouring under an acute disease which, I think, probably was acute rheumatism. Elsewhere<sup>f</sup> he records a somewhat anomalous case, strongly resembling chorea, however, in the description, occurring in a young nobleman, whose father he specially draws attention to as having suffered much from articular pains. He records an opinion expressed on this case, that there existed a spasmodic rheumatism or a convulsion from saline particles falling upon the muscles of the thorax and limbs, and these stimulating the nerves. The case terminated in death, and on *post mortem* examination spiculæ were

<sup>a</sup> Brit. and For. Med. Chir. Review, 1860.

<sup>b</sup> Rufz, on the other hand, has observed it to be more common in the hot than in the cold months.

<sup>c</sup> Edin. Med. and Surg. Journal, Vol. viii. Dr. Reeves.

<sup>d</sup> Fred. Hoffman, Opera Omnia, Genevæ, 1740, Tom. iii., Cap de motibus spasmodicis vagis.

<sup>e</sup> De sedibus et causis morborum, Venet. 1761, Epist. art. 5.

<sup>f</sup> Epist. xxv., art. 6.

found in the falx, which Valsalva, who had seen the case, accounted for by saying that the matter which goes to form gout being diverted by the improper use of mud baths, to which the patient had been subjected, had gone to form the spiculæ which caused the convulsions—an opinion which the present state of our knowledge on the subject will scarcely allow us to dispute. Sydenham's somewhat similar idea of the pathology of the disease—"This disorder appears to me to proceed from some humours thrown upon the nerves, which, by their irritation, excite preternatural motions," is about as far as we have got, now nearly two hundred years since he wrote it.

Sauvages<sup>a</sup> mentions a boy, aged twelve, labouring under chorea (scelotyrbe), and says, "arthridite rheumatismali recens sanatus incidit sensim in instabilitatem totius corporis." He also mentions the case of an old woman who suffered from a variety which he names *scelotyrbe festinans*, and who "laborat enim rheumatismo sicco."

Stoll<sup>b</sup> and Hamilton<sup>c</sup> both mention cases of chorea commencing with rheumatic symptoms.

The first distinct mention, however, which I have been able to find of the intimate relation of chorea and rheumatism as a well-ascertained condition, is in a *Syllabus of Lectures on Practice of Medicine*, published for the use of the students at Guy's Hospital in 1802. Unfortunately, it does not give the author's name; and although I have made many inquiries on the point (in which I have been kindly assisted by my friend Mr. Bryant), I have failed to ascertain it. In a later edition the same syllabus mentions the fact that the two affections sometimes alternate, a statement which has since been amply verified.

Trousseau has observed a connexion between scarlet fever and chorea, and the fact that acute rheumatism is one of the less frequent sequelæ of scarlet fever is well known.

Dr. Copland, in his article on chorea (*Dict. Prac. Med.*), claims to have been the first to show the connexion between chorea and rheumatism, having published a fatal case in the *London Medical Repository* for 1821, p. 23. Dr. Bright<sup>d</sup> first drew attention to its occurrence along with pericardial and pleuritic inflammations, and considered these the causes of the motions by the irritation from them upon the general system through the medium of the phrenic nerve—a doctrine belonging to the mechanical school of pathology, to advance which Marshall Hall attempted so much. The discovery of the connexion between the two affections is strangely attributed to Addison, as having been made by him so late as 1841, and this by no less an

<sup>a</sup> Nosologia Methodica, Francois Boissier de Sauvage. Amstel, 1768, Tom. i., p. 592.

<sup>b</sup> Ratio medendi. <sup>c</sup> On purgative medicines.

<sup>d</sup> Med. Chir. Trans., 1838.

authority than Dr. Babington. It was not till 1847 that physicians were led by Dr. Begbie<sup>a</sup> back to the safer, if not more satisfactory, doctrine of humoralism; that the two affections had really no relation as cause and effect, but that they really both depended on a blood-poisoning—probably the same poison acting differently under different circumstances.

The statistics of the cases of chorea as associated with rheumatism—at least those to be depended on—are of no great extent. Dr. Hughes gives the only list of any consequence, and there barely 14 per cent. are mentioned as having been directly connected with rheumatism. Other lists of less extent raise the per centage to nearly 30. My own experience is that I have not seen a case which has not been more or less intimately related to rheumatism.<sup>b</sup> M. Rufz is the only author who has not observed any relation between chorea and other affections, and he does not believe in its spread by imitation.

Dr. Anthony Todd Thomson, in a lecture on Choreia,<sup>c</sup> says—"If death occur from what may be termed *idiopathic chorea*, it is almost always the result of that form of the disease which sometimes accompanies rheumatic fever;" and this statement would certainly appear to be borne out by facts; for of twenty-six cases of chorea with a fatal termination, in which the history is satisfactorily given, I find that twenty-one—18 females and 3 males—have a distinct history of rheumatism, generally severe; and that only five—3 females and 2 males—have no mention of rheumatism in their history. Sex again seems to bear heavily on the disease, for Dr. Webster<sup>d</sup> states that chorea is not only much more common in girls than in boys, but that it is much more fatal in the former; and the report of the Registrar-General for the same year gives 20 females and 4 males as dying of chorea.

The *post mortem* examination of the brains in a large number of fatal cases has led to no satisfactory conclusions. In the majority of instances the appearances are nil; and in the cases where abnormal conditions are found these are so contradictory as to lead to no positive result. I have examined the records of nearly a hundred cases, and have found the results so various that it would answer no purpose to tabulate them. In nearly sixty cases no abnormality was found. Dr. Addison speaks of having had repeated opportunities of examining the bodies of patients who have died of chorea, and of never having detected any lesion of the cerebro-spinal mass, except in one case where there was chronic

<sup>a</sup> Edin. Med. Jour., 1847, and Begbie's Contributions to Practical Medicine, p. 68.

<sup>b</sup> In the investigation of this point physicians should not forget the well-known hereditary tendency of rheumatic affection. Such a tendency in chorea has been noticed by Bright, See, Hasse, and Begbie.

<sup>c</sup> London Medical Gazette, Nov., 1831.

<sup>d</sup> Lancet, December, 1840.



thickening of the *dura mater* in the course of the middle meningeal artery. He had seen many cases of meningeal inflammation going on even to pus, yet never in one did he observe choraic movements. Sir Benjamin Brodie records a case where he found a tumour about the size of a hazel nut in connexion with the pineal gland. Prichard and Bright record instances where the choroid plexus and velum interpositum were much congested, and this I have also found. Effusion into all the serous cavities, more or less abundant, has been several times found. Tumours in various parts of the cerebrum and cerebellum have been noticed. In two cases there was softening of the fornix; and in one, softening of the cerebellum. Rostan (*Medicine Clinique*, 1830) mentions a fatal case in a woman aged fifty, who from childhood had been affected by chorea of the whole left side of her body, with atrophy of the limbs; yet, contrary to his expectation, a *post mortem* examination showed nothing.

The conclusion to which we are forced by these embarrassing conditions is that the muscular affection does not depend on any local affection of the cerebro-spinal axis further than by a toxemia—"the humours thrown on the nerves"—and that whatever organic lesion there may be of nerve substance it is generally secondary to the original cause, or quite independent of the affection altogether, and but rarely is the direct cause. Mead, in his *Precepta Medica*, thus briefly dismisses the affection:—"This disease, alike ridiculous by appearance and reason, I believe to be a paralytic affection, and by frequent cold bathing and chalybeates advise to be dispelled." In his *Imperium solis ac Lunae in Corpora Humana* he expresses his belief in the influence of the luminaries in this disease. "For the most part," he says, "the disease is mild, and attacks weak ones and such as are of a tender habit of body; girls more frequently than boys, and very rarely adults."

Having found that the female sex is much more predisposed to attacks of chorea than the male, and that the period of the greatest frequency of attack is just about the time of the commencement of their specific physiological function—menstruation; it becomes a point of great importance to inquire how far the disturbance of this function influences the attack or termination of the disease. Dr. Hughes says that females are rarely affected by chorea after puberty unless they are troubled with some irregularity of the periodical functions of the uterus, or unless the disease be directly dependent on rheumatism or disease of the brain and spinal marrow. In one of his three fatal cases the disease occurred simultaneously with suppression of the menses. Davis<sup>a</sup> mentions a fatal case in connexion with deficient and irregular menstruation. Another fatal case occurs in the *Edin. Med. and Surg. Journal*, Vol. i., where suppressed menstruation is given as the cause. Dr. Bright, in his Reports,

<sup>a</sup> Obstetric Medicine.

attributes the disease in a fatal case to uterine disease. Dr. Harrison<sup>a</sup> gives a case where it was associated with precocious menstruation at eight years of age, and in which the attacks were evidently governed by the menstrual flow.

Dr. Hawkins<sup>b</sup> relates a case which occurred in the Middlesex Hospital of a girl who had violent chorea seven weeks after acute rheumatism. The catamenia had been suppressed for four months. No treatment was of any avail, and she died on the sixth day of treatment. Dr. Sunderland<sup>c</sup> details the case of a girl who was attacked by chorea in the beginning of January and rapidly became so bad that she had to be secured in bed. On the 6th of February the catamenia appeared and the convulsions ceased, but recurred with equal violence on the 8th, when the flow ceased, and she died on the 12th.

Bidingfield mentions, in his *Compendium*, difficult or suppressed menstruation as a special cause of chorea. Dr. Chourn<sup>d</sup> records the case of a girl, aged seventeen, in whom the chorea was so bad that it continued during sleep, and was so violent that the patient was wakened by the blows she gave herself. In this case menstruation had never taken place; and it is the only instance that I have found of the movements occurring during sleep. Lisfranc has recorded cases where he found the uterus engorged and menstruation irregular, and in which local depletion and iodide of potassium quite relieved the affection. Similar cases are mentioned by most writers on the disease.

The interruption of the menstrual flow by impregnation seems to exert a very special influence as an immediate cause of chorea in those already disposed to it. Dr. Prichard mentions the case of a girl of loose life, aged nineteen, who had violent chorea in connexion with pregnancy. She aborted and died. The *post mortem* examination revealed nothing but general congestion of the cerebral mass, and more especially of the choroid plexus. Dr. Peacock mentions a case in connexion with pregnancy at the sixth month. Dr. Bond mentions chorea in connexion with pregnancy, and explains it by reflex action from the fetus (an explanation which only renders the obscurity of the condition more opaque). Dr. T. King Chambers (*Clinical Lectures*, 4th edit., p. 370) gives the following interesting case:—

Sarah C., aged twenty-three, married, and full six months pregnant for the first time, was attacked with acute rheumatism and chorea at the same time. She had a cardiac complication, which subsided along with the rheumatic symptoms, but the chorea continued until the child was born at the full time, and then was cured. “Had this young woman,”

<sup>a</sup> Lancet, 1828.

<sup>b</sup> Lond. Med. and Phys. Journal, 1826.

<sup>c</sup> Med. Chir. Review, May, 1829.

<sup>d</sup> Lancet, Aug., 1839.

he says, "been in any danger it would have been worth while to have induced premature labour; I have no doubt it would have stopped the chorea, but the remedy would have been worse than the disease." Dr. Tanner has kindly favoured me with a proof-sheet of a coming edition of his work, which contained the following interesting cases:—

A Jewess had suffered from chorea as a girl, and had been successfully treated; fifteen years afterwards she married and became pregnant, when an attack of chorea set in more violent than Frank had ever witnessed in a practice of fifty years. The spasmodic movements continued day and night; and although there was perfect consciousness, yet the behaviour was most violent. The integuments were covered with boils and gangrenous spots. None of the remedies used had any effect; but a miscarriage took place at the fifth month, and health was restored at the same time.<sup>a</sup> Dr. Ingleby<sup>b</sup> narrates five cases of chorea in connexion with pregnancy, all of which were fatal; in one which the convulsions did not come on until very near the end of gestation, and did not cease after delivery. The patient died, apparently from extreme exhaustion, little more than twenty-four hours after delivery. Dr. Lever<sup>c</sup> narrates the case of a primipara who suffered severely from chorea after the third month of gestation until labour set in, when during uterine contraction the movements abated and recurred with their usual violence in the intervals. The disease had become so bad as to affect her intellect seriously. At the end of a month after delivery all traces of the affection had disappeared. It is also worthy of notice that the child of this patient had an attack of chorea at the age of twelve, the removal of which was simultaneous with the appearance of the catamenia, which afterwards occurred regularly. Dr. Lee<sup>d</sup> records a case of severe chorea where nature expelled the contents of the uterus forty-seven hours before death. The patient was in the sixth month of her second pregnancy, and had a rheumatic history. *Post mortem* examination showed nothing of consequence. Dr. Lee seems to have entertained the idea of inducing premature labour in this case. Dr. J. M. Duncan gives two mild cases in the *Edinburgh Medical Journal* for 1854, both of which recovered before confinement.

The following sentences are the notes of a case which fell under my care a short time since, and are I think of sufficient interest to be placed on record:—

Sarah T., a thin, anemic-looking blonde, aged twenty-seven, seen for the first time June 19, 1867, with well-marked, almost violent chorea.

<sup>a</sup> Josephus Franks, *Praxeos medicæ universæ precepta*. Tom. i., p. 348. Lipsiæ, 1841.

<sup>b</sup> *Lancet*, February, 1840.

<sup>c</sup> *Guy's Hospital Reports*, second series, Vol. v., p. 4.

<sup>d</sup> *Clinical Midwifery*, second edition, p. 112.



Her former history is, that when scarcely fifteen she had a severe attack of rheumatic fever, from which she recovered with chorea movements, that slowly left her in a few weeks. Ever since she has suffered from rheumatic pains. Her mother is very rheumatic, and her father slightly so. Three years ago last seventh of May she had her first child. About twelve weeks after the last appearance of the catamenia, chorea movements began, and continued with increasing severity until labour set in; never, however, so bad as to prevent her attending to her household duties. The moment the child was born, she says, the movements left her. The child of this labour, a girl, is now markedly chorea. Rather more than a year after her first child was born she became again pregnant. The movements began about the same time as in the first pregnancy, but throughout they were decidedly more severe. They likewise ceased when labour was over. A few weeks after their cessation she suffered from a severe attack of typhus fever, during which the movements were distinctly manifest. About seventeen weeks ago she states that she was aware she was pregnant, because she had not been unwell for seven weeks, and had been suffering from the movements for nearly a fortnight. They were becoming very severe, when she had an abortion, which she attributed to lifting a weight. They ceased immediately the birth was removed. She must have become pregnant again almost immediately, because she never was aware of a menstrual period after the miscarriage. She has been suffering from the movements for nearly twelve weeks, and the uterus is now the size attained between the third and fourth months. Within the last few days the movements have become much aggravated, worse, she says, than ever they were. Her appearance and motions are very characteristic of severe chorea; her tongue is much bitten, and her limbs are much bruised. She has not slept for four nights. The heart sounds are quite normal; consciousness and memory are unaffected, and so is speech, save that it is *snappy*, as is usual in chorea. She throws articles from her, but handles her child with care. The urine contains no albumen, is deficient in chlorides, and contains a very considerable amount of sugar; sp. gr. 1,031. Ordered fifteen grains of the bromide of potassium every hour.

20th.—No better; increased the bromide to a drachm every hour, but with no effect, save that the quantity of urine was increased.

21st.—Applied ice-bags to the spine and gave opium freely without effect.

22nd.—Asked my friend Dr. Atkinson to see the case in consultation. Antim. tart. gr. ii., tr. opii. ʒi., aq. ʒviii., an ounce every two hours. Persevered in till the 25th without any benefit. The pupils are quite pin-point size, while the movements have become so violent and the sleeplessness so persistent, that my proposal to empty the uterus is resolved upon with the consent of Drs. Atkinson and Holdsworth. On the forenoon



of the 26th I introduced a gum elastic catheter into the uterus, and allowed it to remain until 8 p.m., when I introduced a sponge-tent, and put the patient under chloroform. A succession of sponge-tents allowed me to turn the child, and extract it by the feet, at 6 a.m., on the morning of the 27th. No blood was lost, although I had some difficulty in removing the placenta. She was kept under chloroform until 9 a.m., when she awoke, free from the movements, and had some food. They came on again, however, about 7 p.m., and at 9 were so bad as to necessitate the re-administration of chloroform, which was kept up for nearly twenty-four hours. Being by that time utterly worn out by the case and press of other work, and lacking other means for the proper attention to the case and the administration of the anesthetic, its use had to be given up. During the night of the 28th she was so violent as to require five people constantly to hold her. About 10 a.m., on the 29th, she became comatose, and died in twelve hours. *Post mortem* examination revealed nothing, save very marked congestion of the vessels of the brain, more especially the choroid plexus, a recent clot from the rupture of a small vessel in the velum interpositum, and the dura mater rather adherent to the brain surface. The uterus was well contracted, and showed no evidence of injury from the induction of labour.

There are two points in this case on which I must express regret; first, that, with such evident indications before me, I did not induce labour at a much earlier date; and second, that the patient was allowed to become fatally comatose for want of chloroform. Should I ever meet with a similar condition again, I shall keep the patient under its influence six months rather than have a like result. The first mention which I have found of the use of chloroform in subduing the movements of severe chorea, is recorded by Mr. Harris<sup>a</sup> in a case where he kept up its influence for a fortnight, with a successful result. Dr. Barclay, Medical Registrar of St. George's Hospital, details a case<sup>b</sup> of severe chorea depending on amenorrhea, when the patient was kept anesthetic for nearly two days with a successful result. Sir James Simpson<sup>c</sup> recommends its employment in such cases. Dr. Gery<sup>d</sup> says that at the Sick Children's Hospital at Paris the use of chloroform in chorea produced the most beneficial results. Dr. Murray, of Newcastle, relates a fatal case occurring in a young lady, twenty-one, at the menstrual period. She was kept under chloroform for more than fourteen hours, with the result of arresting the movements completely; but she died forty hours after the cessation of the anesthesia, apparently from exhaustion.

<sup>a</sup> *Lancet*, June, 1848.

<sup>b</sup> *Medical Times and Gazette*, May, 1853.

<sup>c</sup> *Obstetrical Memoirs*.

<sup>d</sup> *Bulletin Generale de Therapeutique*, 1855. In the same journal a very severe case is recorded where anesthesia was kept up for four days, with a good effect.

Dr. Tanner recommends it to be used.

In regard to the further history of the treatment in the case of my poor patient, I may only say that during her many attacks she had had a multitude of counsel—that all suitable remedies had been tried, from quinine and iron down to sulphate of aniline, and all with the same effect—none. The only remedy I have ever seen of any permanent benefit in this disease is *arsenic*.

The occurrence of sugar to some extent in the urine of this patient is of interest. It has been noticed before frequently, but the observations on the point are rather desultory. Whilst one author says it almost always occurs, another will say (as Dr. Chambers tells me) that he has not been able to find it. A very general condition of the urine found in this disease, specially noticed by Walshe and Todd, is an abundant deposit of lithates. Dr. Bence Jones noticed in severe chorea that the phosphates were diminished in quantity, and that the sulphates were in great excess; and that the specific gravity might be as high as 1,036.

Since the above was written I have met with the following cases which illustrate the connexion between rheumatism and chorea, and the hereditary tendency of both; indeed I believe if the family history of every case is examined carefully it will be found that there is strong reason to believe that the two affections are really the same, under different aspects. They will also show the efficacy of a new method of treatment. The first was the case of an interesting little girl, the daughter of a medical friend. B. S.—, aged thirteen, had slight choraic movements in the beginning of January last, and got gradually worse until March, when, for three weeks, she could neither speak nor swallow for the movements of the tongue. She could be fed during that time only when flat on her back, with her head fixed, the food being placed on the back of the tongue. Almost every remedy tried had no effect, save the bromide of potass, and that only slight. The application of the ether spray down the spine had the invariable effect of sending her to sleep for an hour or two, and of mitigating the motions. To it her father attributes the cure which was accomplished in June. The family history is an interesting one. Mrs. S. had, when a child of twelve or thirteen years of age, a severe attack of chorea, which lasted many months, and this year, the forty-third of her age, she has suffered from a very severe attack of acute rheumatism. Mrs. S.'s mother had acute rheumatism in her fortieth year, and has been a martyr to the chronic affection. An elder daughter of Mrs. S., now in good health, also suffered from chorea at about the same age as B. S.

E. K., a delicate blonde, exhibited slight motions early in May, which in a few weeks became very severe, affecting speech. The menstruation had always been scanty and painful. The ether-jet had the same effect as in the case of Miss B. S. She was quite well in August.

A. F., a delicate lad, aged twelve, employed in a telegraph office, was attacked seven days ago with severe chorea. His maternal grandfather had acute rheumatism in middle life, and his mother's youngest sister had severe chorea when a child. The ether spray was applied every other day, with the effect that the morning after the third application he went to his work, and in a few days was quite well. The application was followed by the same somnolence as in the other cases.

In conclusion I may, perhaps, be allowed to draw attention to a case,<sup>a</sup> perhaps unique in the history of the disease, where the movements existed from birth, and probably even during fetal life. A woman when in the fourth month of pregnancy had a very loathsome object thrown at her and was ill of a low, nervous fever for two months after it, but recovered her health and went to the full time. She remarked that the child was more than usually lively in her womb, so much so as to disturb her considerably. At birth the child, a female, displayed marked chorea, which continued till the patient was thirty. The mind is hardly removed from complete idiocy, and the patient looks little more than an elderly child. The motions are constant, save in sleep.—*December 14th, 1867.*

*Specimen of Rupture of Uterus.* By DR. SPEEDY.

Mary M'Keogh, aged thirty-eight, admitted, for her third pregnancy, into the Rotundo Hospital on the 4th January, 1868. She was extremely delicate and weakly, and had lingering pains. After some few hours the head was found not to progress, and early the following morning the forceps were applied ineffectually, delivery being accomplished by means of the crotchet. There was no hemorrhage nor any recession of the presenting part; stranger still, the uterine action was strong, not only during delivery, but in the interval of ten minutes which elapsed before the placenta was expelled; her pulse became weak and rapid; the face wore an anxious expression; and coffee ground vomiting set in almost immediately. She was placed on opium and dried soda, alternately with prussic acid mixture very fourth hour; brandy, beef-tea, ice, soda-water, also nutritive enemata. There was well-marked tenderness over the entire abdomen; the vomiting still continued up to her fourth day, when it assumed a yellowish look. She gradually became weakly, and sank early that morning. On looking over the history of her former labours in this hospital, I find that the first was delivered by forceps, and still-born; the second was terminated by perforating, forceps having previously failed.

In conclusion, I would mention that there was well-marked peritonitis, the intestines being matted together with lymph, also some fluid in the peritoneal cavity. On measuring the brim I found the anterior posterior diameter to be three inches, the transverse nearly five inches. I distinctly

<sup>a</sup> Recorded in the Medical Gazette for May 23, 1835.

felt the promontory of the sacrum to project downwards in an oblique manner, and to this condition of the pelvis I attribute the impaction of the head in all her labours, and the difficulty of accomplishing delivery; the uterus was large and congested, showing a rupture of the cervix some two and a quarter inches in extent, situated just above the os, and to the right side.—*January 25th, 1868.*

## TRANSACTIONS OF THE COUNTY AND CITY OF CORK MEDICAL AND SURGICAL SOCIETY.<sup>a</sup>

SESSION 1866-67.

DR. JOHNSTONE, President, in the Chair.

*Aneurism of Aorta.*—Dr. W. C. TOWNSEND read the following case:—John Patterson, a sailor, thirty-nine years of age, unmarried, was admitted into the South Infirmary, under the care of Dr. W. C. Townsend, on the 9th of January, 1867.

*History.*—Patient states that he enjoyed perfect health up to about four years ago, when in the act of heaving up the anchor of his ship he felt something give way in his left side. About two years ago he contracted syphilis, for which he took mercury extensively; no syphilitic taint at present remains in his system. During the prevalence of the severe storms, about two months ago, his ship sprung a leak, and patient slept for several nights in succession in his wet clothes, after working at the pumps. This indiscretion on his part was followed by a severe train of symptoms; he immediately complained of cough and pain in his chest, accompanied by hemoptysis; pain in chest particularly referred to left side. Having arrived in Queenstown he was immediately transferred to hospital on the above-mentioned date.

*Present Symptoms.*—Patient presents all the appearance of a broken down constitution—thin, pallid, and emaciated; complains of short dry cough, accompanied by sero-sanguineous expectoration in small quantity; dyspnea and loss of sleep for the past six nights. Pulse feeble, rapid, and regular; tongue clean; inability to lie on left side.

*Physical Signs.*—Chest expands badly on left side, which gives a dull sound on percussion over its entire extent. On applying the stethoscope no respiration whatever was carried on in any portion of left lung.

The respiration over the entire extent of right lung was perfectly healthy, and the lung on that side presented no sign of disease. Heart displaced towards left side, its apex beating in the infra-axillary region.

<sup>a</sup> These reports are supplied by Dr. Purcell, Secretary to the Society.



On applying the stethoscope over the region of the heart no abnormal sound was detected, but heart's action was considerably increased.

*Treatment.*—Ten grains of Dover's powder were prescribed on admission, and patient was put on four ounces of wine, and beef-tea diet; he obtained refreshing sleep after the Dover's powder, and expressed himself much better; an antispasmodic mixture, containing chloric ether, spt. ammon. arom., and camphor mixture was prescribed, of which he took occasional doses, together with small doses of Dover's powder, up to the time of his death, which occurred ten days after his admission, by the bursting of an aneurism.

Patient on the day of his death ate his dinner heartily, and was conversing with his fellow patients when he suddenly threw up a large quantity of blood, and expired in less than ten minutes.

*Autopsy.*—Twenty-four hours after death left lung atrophied and hepatized from base to apex. Pleura on left side contained over two pints of fluid, which, singularly enough, did not produce any bulging of the inter-costal spaces on that side. Surface of heart covered with a layer of fat two lines in thickness. Heart itself flabby and slightly enlarged; the outer surface of the muscular substance presenting the appearance of fatty degeneration. Hypertrophy of left ventricle; valves of heart healthy, with the exception of one of the semilunar valves of the aorta, which had a small aperture in it. A large aneurism four inches in diameter occupied the ascending and tranverse portion of the arch of the aorta, and not lined by any fibrinous deposit. The aneurism communicated with the trachea (three of whose rings were absorbed) by an opening about the size of a shilling. None of the other organs were examined.—*January 23, 1867.*

*Cancer of Pylorus.*—Thomas Wall, labourer, aged thirty-five, was admitted into the South Charitable Infirmary and County Hospital on 13th of May, 1867, under the care of Dr. W. C. TOWNSEND.

About six weeks before admission had an uneasy sensation of fulness and sickness about the epigastric region, with dull pain confined to the back; these symptoms continued for about a week, after which he vomited everything he took into his stomach; was always of temperate habits; his diet before admission consisted principally of bread and tea.

Vomiting, which is constant; bowels costive; countenance shrunk and sallow; vomited about two pints of a barmy-looking fluid on the day of admission; on pouring off the barmy-looking substance, which floated on the top of the vomited matter, an opaque, yellowish-looking fluid, mixed with a large quantity of mucus, could be observed. No microscopic examination of matter vomited.

No tumour or hardness of any kind could be detected, though the abdomen was much attenuated, and a careful examination made.

He was put on arrowroot, milk, and lime water, and to have a terebinthinate enema immediately.

Vomiting still continuing; no alteration in the quantity or character of the matter vomited. The lime water appeared not to agree with him, and was stopped. He was ordered the following powders, one to be taken three times in the day:—

℞ Bismuthi albi, ʒss.  
Magnesiæ (Henry), ʒi.  
Morphiæ mur. gr. i.  
Divide in chart. sex.

Vomiting has not abated; vomited matter has the same appearance as before; an ounce of the following mixture was ordered to be taken every six hours:—

℞ Magnesiae carb. ʒiii.  
Aquæ menth pip. ʒviii.  
H. mist.

Vomiting still continuing, emaciating very rapidly; magnesia mixture and powders were discontinued, and ordered the following pills, two to be taken at four o'clock and two at night, and to have an enema of turpentine in the morning:—

℞ Hyd. sub. mur. grs. x.  
Pil hydrarg. grs. x.  
,, col. co. grs. x.  
In pil sex.

23rd.—The pills and enema acted freely on the bowels, which gave him some relief; to continue pills, and to have two grains of solid opium at night.

25th.—Opium gave him great relief; vomiting still present, but not so frequent as formerly. He was ordered to get 1 grain of opium in the morning, one in the middle of the day, and two grains at night.

26th.—Vomiting still persists; no alteration in the character of vomited matter, but the quantity exceeds that of any former period; dull pain still present, which he refers to the epigastric region.

27th.—Sinking rapidly; has all the appearance and symptoms of collapse from cholera, except the purging; died at four o'clock.

During the time he was in hospital his diet consisted of arrowroot, milk, brandy, and wine.

*Post mortem* appearance twenty-four hours after death. On opening the abdomen the stomach was found to be enormously distended; on

laying open the stomach it was found to contain a large quantity of yellow viscid fluid, of a disagreeable odour; its walls were very thin. On removing the organ from its connexions, the pyloric end and the commencement of the duodenum were found to be involved in a scirrhus mass; the cardiac end of the stomach was perfectly healthy. On examining the liver it was found to be contracted, but with no trace of cancerous deposit in it. Gibson's capsule was thickened and contracted; the liver presented no other aspect of disease; all the other organs of the body were healthy.—November 13, 1867.

*Cancer of Kidney and Lung.*—James Neil, aged thirty-four, was admitted into the South Infirmary, Cork, November 5th, 1867, under the care of E. R. TOWNSEND, jun., M.D.

*History.*—Three months before admission got a severe cold, with great pain in the right side of the chest, and spat some blood. For this he was treated in the Macroom Union Hospital, where he remained for two months, and left it somewhat relieved; was always of temperate habits; had resided in America for three years, where he enjoyed very good health.

*Symptoms on Admission.*—Complains of cough and great difficulty of breathing; expectoration viscid, and tinged with blood; decubitis on the back; complete anorexia; sleeps badly; there is incipient clubbing of the fingers; urine loaded with lithates, but abundant; pulse rapid (100) and feeble.

*Physical Signs.*—Right side of chest acts badly; does not expand at all; left side acts well; the entire right side is dull on percussion, both anteriorly and posteriorly; left side sounds well. There was tubular breathing in the right infra-clavicular region, and as far as the fourth rib, with absence of respiration lower down, and well-marked bronchophony posteriorly. Over the root of the lung there was tubular breathing and increased resonance of voice, not amounting to ægophony; there was exaggerated respiration on the left side; heart sounds natural.

*Treatment.*—He was ordered five grains of Dover's powder, and three of hydrarg. cum creta twice a day; to have a cough mixture containing lac ammoniacum, chloric ether and paregoric; the entire right side to be painted with strong tincture of iodine; to have beef-tea and four ounces of wine.

Nov. 10.—Feels somewhat better; says he can breathe easier; expectoration less viscid; no tinge of blood; is, in fact, only bronchial; to stop the hydrarg. cum creta, not wishing to salivate him; to take five grains of Dover's powder at night, and five grains of iodide of potassium in bark three times in the day.

15th.—To have a draught containing twelve minims of Battley at night instead of the Dover's powder. He continued this treatment up to

the 24th Nov., when he had an attack of hematuria very profuse; it came on during the night, and he was not conscious of it until the morning. The quantity of blood passed must have been considerable. He was ordered a mixture containing gallic acid and opium which soon checked it. He became rapidly weaker from this out, and although well supported, sank on the evening of the 29th of exhaustion, his mental faculties remaining clear to the very last.

*Post mortem examination.*—Right kidney greatly enlarged; weight 15 oz., presenting the appearance of a large tumour; on section the upper part was converted into an immense mass of encephaloid cancer, springing from the convex edge. There was no appearance of kidney structure in this mass. On examination there appeared to be two forms of cancer cells present, those of the scirrhus form occupying a small central portion, whilst the rest seemed to be of the encephaloid variety. The lower portion of the tumour presented the natural appearance of kidney structure, but was much congested; the left kidney was enlarged, and very much congested; it weighed 6 oz., but was healthy in appearance. No appearance of cancer in the liver, which was natural in size and appearance, with the exception of one or two patches of ecchymosis under the capsule. The left lung was studded with cancerous nodules of the encephaloid form of cancer, varying in size from a pea to that of a marble. The right pleura contained a large quantity of fluid; was very adherent in some parts, the membrane being greatly thickened, the result of the first attack of pleurisy, but with evident manifestation of recent inflammation, with freshly deposited lymph, which was quite soft. The lung had been carnified, with some evidence of exudation into it; there were some miliary tubercles scattered through it; no trace of vomicae or broken down tubercular matter, and no cancerous nodules in it; the other organs were healthy. Dr. Johnson, in his work on the kidney, says:—"Cancer is one of the rarest forms of renal disease. In a certain number of cases it has been found to affect the kidneys alone, but in the greater number of instances cancer of the kidney is associated with a similar disease in various other parts, in the lumbar and mesenteric glands, the liver, the lungs, &c. In some cases M. Rayer has found that the cancer has extended from some contiguous organ to the kidney; from the liver to the right kidney, and from the descending colon on the contiguous portion of the stomach to the left kidney. With respect to the form of cancer, the encephaloid variety is by far the most frequent in the kidney. Dr. Walsh says that in forty cases of renal cancer that he has collected, thirty-one were examples of pure encephaloid cancer or one of its varieties; in five only was scirrhus observed, whilst there was no instance of colloid cancer in this organ. The hematoid variety of encephaloid cancer is more frequent in the kidney than in most other internal organs, blood in variable proportions being mingled with the



encephaloid matter. In thirty-five of the forty cases recorded by Dr. Walsh the disease affected both organs sixteen times, the right kidney alone in thirteen cases, the left kidney alone in only six cases. He also says that while no period of life is exempt from cancer of the kidney, persons of advanced years are much the most liable to the disease. He also says the disease is more common in males than females. This man was aged thirty-four years. This man presented no symptoms of renal disease until three days before his death, when he passed a large quantity of blood. He stated that he had never before passed any blood, nor was he aware of any uneasiness in the loins; in fact, there was not the slightest symptom to direct attention to the kidneys.—*December 11, 1867.*

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## CLINICAL RECORDS.

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*Hospital Notes.* By T. H. BABINGTON, M.D., T.C.D.; M.R.I.A.;  
Surgeon Londonderry County Infirmary.

### LONDONDERRY CITY AND COUNTY INFIRMARY, AND CITY FEVER HOSPITAL.

REPORT FOR THE YEAR 1867.

*Numerical Return of Patients Admitted into and Treated in the City and  
County Londonderry Infirmary for the Year 1867.*

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Patients Remaining 31st December, 1866,	-	-	46	
Admitted,	-	-	612	— 658
Discharged Cured and Relieved,	-	-	533	
" Died,	-	-	33	
" Irregular,	-	-	5	
" at own desire,	-	-	22	— 593
Remaining 1st January, 1868,	-	-		65

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*City Fever Hospital Report for 1867.*

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Patients Remaining 31st December, 1866,	-	-	23	
Admitted,	-	-	80	— 103
Discharged Cured,	-	-	88	
Died,	-	-	9	— 97
Remaining 1st January, 1868,	-	-		6

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Number of Beds in Hospital, -	Males, 48 ; Females, 24—Total, 72
Number of Beds in Fever Hospital, -	- - - 32
Total number of days passed by Patients in Hospital, -	- 7,741
"                    "                    "                    in Fever Hospital, -	- 2,218

*Numerical Abstract of Cases of Accidents, Diseases, and Deaths, for the Year 1867.*

ACCIDENTS.	NO.	ACCIDENTS.	NO.
Burns and Scalds, - - -	14	Fracture of Leg, - - -	4
Bite of Dog, - - -	1	"    Compound of Leg, - - -	1
Compound dislocation of Ankle, - - -	1	"    Radius, - - -	14
Dislocation of Hip, - - -	2	"    Ribs, - - -	3
"    Shoulder, - - -	4	"    Thigh, - - -	2
"    Thumb, - - -	3	"    Ulna, - - -	2
Drowning, - - -	1	Injuries of Head, - - -	12
Fracture of Clavicle, - - -	12	"    Spine, - - -	5
"    Fingers, - - -	7	Wounds, Contusions, and General	
"    Humerus, - - -	6	Injuries, - - -	66

DISEASES.	NO.	DISEASES.	NO.
Abscess, - - -	13	Diseases of Urinary Organs, - - -	8
Albuminuria, - - -	6	Dropsy, - - -	6
Anemia, - - -	2	Erysipelas, - - -	3
Anthrax, - - -	3	Hernia, - - -	4
Cancer of Breast, - - -	4	Hemorrhoids, - - -	2
"    Eyelid, - - -	1	Hydrocele, - - -	5
"    Face, - - -	1	Nevus, - - -	1
"    Lip, - - -	7	Onychia, - - -	1
Cynanche Tonsillaris, - - -	3	Paronychia, - - -	3
Diseases of Brain and Nervous		Pyemia, - - -	1
System, - - -	14	Rheumatism, - - -	55
"    Bones and Joints, - - -	24	Struma, - - -	4
"    Eyes and Ear, - - -	21	Syphilis, - - -	13
"    Heart, - - -	10	Tumours, - - -	3
"    Lungs, - - -	96	Ulcers, - - -	46
"    Stomach and Liver, - - -	50	General Debility and other Diseases, - - -	15
"    Skin, - - -	23	Fever, - - -	80
"    Uterus, - - -	4		

*Diseases and Accidents which proved fatal.*

	NO.		NO.
Albuminuria, - - -	1	Disease of Brain, - - -	3
Accident, - - -	9	"    Heart, - - -	2
Bronchitis, - - -	1	Phthisis, - - -	8
Diarrhea, - - -	1	Pyemia, - - -	1
Dropsy, - - -	1	Tetanus, - - -	1
Fever, - - -	9	Old Age and Debility, - - -	5

*Operations.*

	NO.		NO.
Amputations of Toes, - - -	3	Removal of Cancerous Lip, - - -	4
"    Thigh, - - -	2	"    Tumour from Scalp, - - -	1
		"    Nevus, - - -	1

I.—*Burns and Scalds.*—Two fatal cases of burns were recorded during the year; both occurred in epileptic patients, a formidable complication in any case of accident.

One very severe case of scald of mouth and larynx in a child aged seven years, has been recently under treatment; the child inhaled the steam from the spout of a boiling kettle. There was great congestion and difficulty of breathing, the symptoms not being, in my mind, sufficiently urgent to warrant tracheotomy, and, impressed with the feeling of the unsatisfactory result so frequently following the operation, I treated the child with antiphlogistics and mercury, as recommended by my esteemed friend Dr. Bevan, in the 29th volume of the *Dublin Quarterly Journal of Medical Science*, and with the happiest effects.

II.—*Compound Dislocation of Ankle Joint*.—A young woman, aged twenty-six, cook in an hotel, slipped and fell; her left foot turned under her in some indescribable manner; the fibula was split and fractured, the lower end of the tibia was dislocated, and protruded through the skin about two inches, and a portion of the internal malleolus was detached. The patient was placed under chloroform, but all attempts at reduction having failed, I was obliged to saw off more than an inch of the protruding tibia before I could adjust the lacerated joint. A great deal of constitutional irritation followed; the patient had three successive attacks of phlegmonoid inflammation, extending to above the knee, along the thigh; many abscesses were opened, and the patient was often in such peril that I almost wished I had amputated the leg the day she came into hospital, but I had the satisfaction of discharging her after being eight months in hospital, with what will be a *very useful if not a very shapely limb*.

III.—*Hemorrhage from a wounded Radial Artery* was effectually controlled by acupressure.

IV.—*Twelve Cases of Injury of Head* came under treatment, two proved fatal; one fell into the hold of a ship, on his head, and fractured the frontal bone. He was admitted in a state of insensibility, and died whilst I was in the act of removing the depressed and smashed pieces of bone. The other died insensible two hours after admission.

V.—*Five Cases of Injury of Spine* were admitted; three proved fatal. The first lived only three days after receipt of injury; he died from effusion into bronchial tubes and air cells; the third cervical vertebra was fractured. The second fell down some high rocks, and was injured at the tenth dorsal vertebra; he lived fourteen days. The third was struck by the shaft of a cart, *as he said*, between the shoulders; he lived twenty-one days. These died from bed-sores and prostration.

VI.—*The General Injuries* include wounds, sprains, and contusions; some were admitted of a grave and severe nature; two proved fatal. A number of men were engaged pulling down a rotten old building;

the flooring gave way, pulling some walls with it, and three were buried in the ruins. One had his left thigh fractured, his right hip dislocated, and a fracture of the ileum on the same side, a wound communicating with the fracture. He died seven hours after the accident. The second was completely smashed about the chest, and lived one hour longer than his comrade. The third escaped with a few contusions. The nine fatal accidents were as follows:—Two from burns, two from injuries of head, three from injuries of spine, and two from general injuries.

VII.—*Cancer*.—In the report of cases treated in this infirmary in 1866, I enumerated two cases of cancer of the breast, removed by amputation; both considered what are called “promising cases;” the diseased structure appeared to be localized; no cutaneous or glandular contamination, and good constitution. The breasts were removed, the wounds healed well and kindly, but in six months, in each case, the cicatrix became hard, speedily ulcerated; axillary glands and skin became infiltrated; much pain and suffering; cedema of arms; and within twelve months from the operation, I followed both “promising cases” to the grave.

Four cases of cancer were received this year; in three the axillary glands were diseased, and other general symptoms were unfavourable; therefore, removal of the breast was not proposed. *Acetic acid* was injected in three cases. Two would not remain under observation. The third I see frequently; she is young, aged twenty-six; has been recently confined; about half the tumour has sloughed away. I will inject the acetic acid again and watch the result.

The fourth case is rather anomalous. A young woman, aged twenty-six, while nursing her fourth child, felt uneasiness in her right breast; the nipple became retracted to almost underneath the skin; all secretion of milk ceased in the breast; the skin all over the gland became in a similar way contracted; the gland absorbed and the skin shrivelled, corrugated, and, as it were, dragged inwards, and puckered all over the region of the mammary gland. There was much stinging pain; the patient was bright, cheerful, and most anxious to have something done for her before coming under my observation. “*A cancer curer*” had circumscribed the diseased skin with a plaster which had ulcerated the parts rather deeply. The only operation to be performed was to dissect off the whole mass, leaving it to heal as it might. I hesitated; I waited and watched; while under my observation the other breast, in which there was still milk, became attacked in similar manner. She then gave up all hope and went home. She died three months afterwards of some very acute affection of the lungs, as I heard. I am not in a position to pronounce any opinion as to the advisability, or otherwise, of operating in cases of cancer of the breast. Figures and cases can be calculated, and statistics arranged to meet every or any view; but the words of (that master mind in Irish surgery) the



late Mr. Colles, in his lectures, should not be forgotten. "For my own part it is an operation I would not press on the patient or her friends at all. It is one by which very little service is rendered at any time."

*On the Rhythm of the Sounds of the Heart.* By F. C. DONDERS, M.D., F.R.S.; Professor of Physiology and Ophthalmology in the University of Utrecht. Translated from the "*Nederlandsch Archief voor Genees en Natuurkunde*," Utrecht, 1865. By WILLIAM DANIEL MOORE, M.D., Dub. et Cantab., M.R.I.A., Honorary L.K.Q.C.P.I., Fellow of the Swedish Society of Physicians, of the Norwegian Medical Society, and of the Royal Medical Society of Copenhagen; Secretary for Sweden, Norway, and Denmark, to the Epidemiological Society of London.

I. *Introduction.*—The sounds of the heart are distinguished as first, *I*; and as second, *II*. The first begins nearly with the impulse and continues until the second falls in as a short stroke; hereupon follows the pause, which is terminated by the first sound of the following period.

The distance between the commencement of *I* and that of *II* we call  $\alpha$ , that between *II* and *I*, *A*. Thus the duration of one period is  $P = \alpha + A$ .

*P* is known by the frequency of the impulses. If we now determine  $\alpha$  or *A*, we know both, and therefore at the same time  $\alpha : A$  and  $\alpha : P$ . This includes the knowledge of the rhythm of the heart.

Respecting the rhythm, little is to be met with in literature.

Laennec<sup>a</sup>, the founder of the science of auscultation, described the sounds very well, but said nothing directly about the rhythm. It would appear, however, that he did not consider  $\alpha$  to be much less than *A*. He had, as we know, an incorrect idea of the sequence in the action of the heart, and when he says: "*Sur la durée totale du temps dans lequel se suivent les contractions successives des diverses parties du cœur.....la moitié ou à peu près est remplie par la systole des ventricules*," this means that *I* and *II* lie at little less than half a period from each other.

The only person, so far as I know, who has endeavoured experimentally to solve the question is Volkmann<sup>b</sup>. His method consisted in regulating the length of a pendulum, so that the duration of its vibrations was equal to  $\alpha$ , therefore also to *A*. At the same time he determined the duration of the whole period, and as he thus found *P* about  $= A +$ ,<sup>c</sup> he thought that the correctness of his results was beyond doubt. Absolute values Volkmann does not give. He merely states, that as the mean of nine

<sup>a</sup> De l'auscultation médiate. Paris, 1819 (I used Andral's edition), Bruxelles, 1837.

<sup>b</sup> Zeitschrift f. rat. Medicin. 1842. Bd. III. p. 321.

<sup>c</sup> The difference stated by Volkmann is indeed rather great.

experiments, he found  $\alpha : A = 96 : 100$ . Now this result appears to confirm Laennec's opinion which assumes for  $\alpha$ , "la moitié ou à peu près.

Many years ago, however,<sup>a</sup> in repeating Volkmann's experiments, I found that this result does not deserve credit: it appears impossible to say of a single vibration, that it is equal to  $\alpha$  or to  $A$ ; and for a series of isochronous strokes, which would be necessary for this, the opportunity, with the constantly alternating cardiac sounds, does not exist. Indeed, I thought I had satisfied myself, that the difference between  $\alpha$  and  $A$ , in ordinary cases, is greater than Volkmann had found it; but my results also were too uncertain, to enable me to say anything more upon the subject.

Others have, from simple estimation, thought they might assume that the heart beats in a triple measure, of which  $\alpha$  would occupy only one-third, while the second sound with the pause would amount to two-thirds<sup>b</sup>. Spring, the profound writer of the *Mémoire sur les mouvements du cœur*,<sup>c</sup> thinks he has observed, that in youth and in a state of perfect rest the heart beats in a quadruple measure, of which half belongs to the diastole, the other half to the systole with the præstole assumed by him. But so soon as the circulation is a little accelerated, even if it be only in consequence of a change in position or of mental emotion, it becomes triple, two-thirds belonging to the state of action, and only one to that of rest. In Marey<sup>d</sup> we find not much more than that with respect to the rhythm of the heart a great difference exists. In general, the rhythm is not independently investigated, but deduced from, or connected with, the sequence in the action of the heart, with the phases of which the sounds have at the same time been treated.

Nor could the coryphæi of physical diagnosis in Germany satisfy me. Here they stumble on a confusion between the duration of the proper pauses (stille), which it is certainly very difficult to determine, and the distance from the beginning of the one to the beginning of the second sound, in which we are concerned. I spoke of pauses, in the plural: some writers, in fact, assume—I mean since Purkinje—two pauses, a great one between *II* and *I*, a short one between *I* and *II*, the latter especially perceptible in auscultating over the mouths of the arteries. But sometimes, according to Skoda<sup>e</sup>, the pause between *I* and *II* is "so short, that the second sound over the ventricles appears as it were the accented end of the first sound, and the first sound over the arteries" (where it is less distinct)<sup>f</sup> "as it were only a premonitory stroke of the second sound. But in

<sup>a</sup> Handleiding der natuurkunde van den Mensch [Guide to the Natural History of Man]. 1853. Part II. p. 44.

<sup>b</sup> Conf. Beau, *Traité d'auscultation*, p. 229.

<sup>c</sup> *Mémoires de l'académie royale des sciences, des lettres et des beaux arts de Belgique*. Bruxelles, 1861. T. XXXIII. p. 51.

<sup>d</sup> *Physiologie médicale de la circulation du sang*. Paris, 1863, pp. 105 et seq.

<sup>e</sup> *Abhandlung über Perkussion und Auscultation*. 6te Aufl. Wien, 1864, p. 207.

<sup>f</sup> Conf. Rapp. *Zeitschrift f. rat. Med.* 1849. B. VIII. p. 151.

other cases," continues Skoda, "the pause between the first and second sound is almost as long, or exactly as long as the pause between the second and the ensuing first sound." The words printed in italics would lead us to believe, that he is here speaking of  $\alpha$  and therefore also of  $A$ , if all the rest had not evidently reference to the pauses alone. With Friedreich<sup>a</sup> I found the same confusion, even including the brief statement of Volkmann's results, which nevertheless referred only to  $\alpha$  and  $A$ .

From all this it appears, that little trouble has been taken with respect to the rhythm of the sounds of the heart. And yet this rhythm is unmistakeably of great physiological importance. In a subsequent article I shall show more precisely, that  $\alpha$  represents the active period of the heart, consequently the duration of the process, the ground of which is to be sought in the heart itself, while the period  $P$  is determined rather by the regulating nervous system external to the heart. In modification of the heart's action, under this or that influence, the altered frequency of the strokes is thus only one side of the question; and if our principal object be also to determine the modification of the active process, this can be known from the rhythm of the cardiac sounds. For this the simple statement of the existence of this or that rhythm is not sufficient; *it must be measured.*

II. *Method.*—In order to measure the rhythm, the cardiac sounds must be registered: that is, the times must be reduced to long measure. If with the slight force of the cardiac sounds it was scarcely to be conceived that they could be recorded by means of a body brought into a state of corresponding vibration, this might be effected in an indirect method. Now the latter was found in the registration of movements of the hand, practised in unison with the rhythm observed by the ear: during auscultation we follow the rhythm of the cardiac sounds by striking on the arm of a marker, and this registers the times on a revolving cylinder. In order in each experiment to ascertain also the frequency of the pulsations, the seconds of a clock are, by means of electromagnetism, registered on the same cylinder. We thus obtain figures, as the following:

FIG. 1.



$R$  is the tracing of the rhythm,  $S$  that of the seconds, the distance from 0 to 2 being equal to two seconds. In the tracing  $R$  the distance  $II\ II=\alpha$ , and  $II\ I=A$ , so that  $I\ I'$  as well as  $II\ II'=P$ . At  $\alpha$  the marker

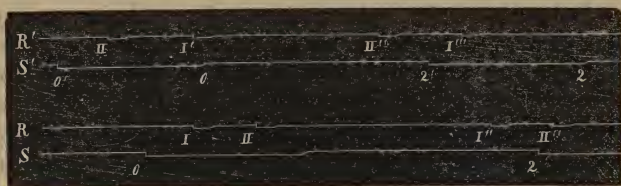
<sup>a</sup> Handb. der bijzondere pathologie en therapie, onder redactie van Virchow. D. V. Afd. 2. bl. 199.



is pushed down on hearing *I*, at *b* the finger is again taken up and the marker rises; at *c* it is again depressed on hearing *II*, it rises again at *d*, to begin at *d*, on hearing *I'*, the second period. Such periods were registered to the number of about twenty consecutively, at which the cylinder stopped: the number of corresponding seconds showed the frequency of the pulsations, and from the  $\alpha$  and *P* measured for each period the averages were calculated for the whole circuit.

Subsequently I found, that, with regular pulsations, the rhythm is capable of being imitated with more certainty and accuracy, by omitting one after each registered period. We then write, it is true, opposite a following period the rhythm of the preceding one; but where the rhythm is regular, this comes to the same thing and has no influence on the average. We thus obtain such figures as the subjoined:

Fig. 2.



In the tracing *R'* only *A*, in the tracing *R* only  $\alpha$ , is alternately registered, consecutively to each other from the same heart. In *R'*, therefore, between *I'* and *II'*, *II'* and *I''* have been omitted, and *II I''*, or *I' I'''* is equal to  $2P$ . In the tracing *R*, between *II* and *I''*, *I'* and *II'* have been omitted, and in this case *I I''*, just like *II I''*, is again equal to  $2P$ . In the tracings *S'* and *S* we again see the seconds which show the duration of the periods, and if we now measure the registered or  $\alpha$  *A*, we have only to divide the ascertained value by the half of the like measured  $2P$ , to find  $\alpha$  or *A* in percentages of *P*.

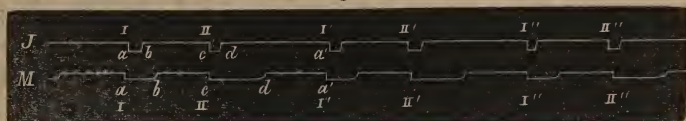
III. *Testing of the Method.*—In order to ascertain what degree of accuracy is attainable by the method just described, we must inquire, with what precision we can reproduce, by movement of the hand, a rhythm perceived by the ear, even when the alternating distances do not stand in simple relation to one another. Besides, I was anxious, for reasons which shall be stated hereafter, to investigate how far the strokes of the hand are isochronous with those ascertained by the ear.

To fulfil both these requirements, sounds must be produced artificially in a rhythm, about corresponding to that of the cardiac sounds, and this rhythm must register itself, and at the same time be imitated in the manner above described. If the experiment be so arranged, that the markers of the primary rhythm and of that obtained by imitation stand directly under one another, the difference between the two tracings strike



the eye immediately and may now be still more accurately measured. The primary rhythm *I* obtained with the aid of Maelzel's metronome. By shifting the weight on the pendulum we can regulate the number of strokes at will, and by inclining the instrument, we can make the strokes alternately unequal. These strokes themselves are not, however, to be used, for the moments of origin are not to be registered; but *I* attached to the pendulum a wire in a horizontal direction, bent the two extremities left and right downwards, and in the vibrations of the pendulum caused these bent extremities to dip into mercurial troughs, whereby a galvanic current was at the same time closed. To insure the regular action of the instrument, it now appeared to be even better not to incline it, but to produce the alternate difference merely by altering the length of the wire, and by placing the one mercurial trough higher than the other. Now on each closing of the current, the arm of a marker was attracted by an electro-magnet, in a distant room, where the strokes of the metronome could not be heard, and the moments of attraction, with alternately greater and shorter pauses, were here registered on the revolving cylinder of the kymographion. As we heard in the strokes of the markers upon the magnet the registered rhythm, we had only to imitate this with the hand, in the mode above described—by striking, in fact, upon a marker, which registered its movements directly above those produced by the magnet. In this manner we obtain figures like the subjoined:

Fig. 3.

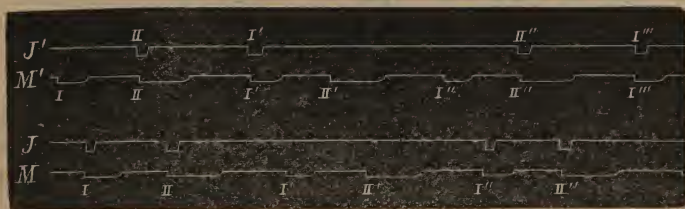


The tracing *M* is the primary rhythm, derived from the metronome; *J* is the imitated rhythm. In both tracings three whole periods are to be seen: *I II* represents  $\alpha$ , *II I'* is  $A$ , &c.; at *a* the markers descend, at *b* they are set free and ascend by their elasticity, at *c* they descend anew, to rise again at *d*, and at *a'* a second period begins.

It here appears distinctly, that in the imitated rhythm *I* occurs somewhat too late and *II* often rather too early, so that  $\alpha$  is reproduced too small and  $A$  too great.

The same occurs when, as in fig. 4,

Fig. 4.



$\alpha$  or  $A$  is alterately reproduced: in the upper tracings the  $A$ 's here imitated, especially the second, are too great, because  $II$  occurs too soon,  $I$  on the contrary scarcely too soon or even too late—as in the lower tracings the  $\alpha'$  are too small, because  $I$  occurs too late and  $II$  too early.

We have therefore here a rather considerable personal error, which with me returns each time, modified however by the values of  $P$  and of  $\alpha$ :  $P$ . Of these results, I here append more than is absolutely necessary for estimating the degree of accuracy attained in registering the rhythm of the cardiac sounds. I do so because the question, what accuracy is attainable, is in a psycho-physical point of view, in itself not without importance, and moreover the method of the indirect registration of sounds will, in other cases also, find application. We should therefore know what it is capable of.

Now, in the first place, the observations, which belong to one and the same circuit of the cylinder, present a slight probable error.

Some examples may illustrate this.

No.	METRONOME		IMITATION	
	Period $P = \frac{1}{32}$ '	$\alpha$	Period $P'$	$\alpha'$
1	12.9	4.4	12.6	4.5
2	18.5	6.8	18.7	7.4
3	21.	8.	21.3	8.4
4	24.2	10.	24.3	9.8
5	25.8	10.3	25.5	9.9
6	26.	10.5	25.9	11.
7	26.6	10.6	27.2	10.6
8	27.1	11.	27.3	10.6
9	27.4	11.3	26.7	10.3
10	27.6	12.	28.4	11.8
11	28.3	11.8	27.8	10.9
12	27.4	11.5	27.1	10.7
13	27.2	11.5	26.6	10.5
14	28.3	12.7	28.	10.8
15	26.5	10.7	27.8	11.1
16	26.4	11.	26.6	11.5
17	26.9	11.	24.7	9.5
18	26.4	10.4	27.2	10.7
19	26.4	10.9	26.4	10.9
20	26.8	10.9	26.8	11.2
21	27.3	10.3	27.6	11.2
22	27.4	10.9	26.3	11.
23	26.8	10.7	27.4	11.6
	536.3	220.	535.1	215.6

The first three observations, in which the cylinder had not yet nearly attained its full rapidity, are neglected: soon, as appears from the period of the metronome, its course became regular enough, and moreover,  $\alpha$  adapted itself to  $P$ , so that, for the strokes of the metronome, the average result is very accurate.

In the case to which the above table belongs, all strokes of the metronome were imitated, and consequently both  $\alpha$  and  $A$  (method  $\alpha'$  conf. fig. 3); but only  $P$  and  $\alpha$  are taken into the Table, because  $A=P-\alpha$  and is therefore ascertained by subtraction. The difference between the sum of the periods  $536.8-535.1=1.7$  places us in a position to judge of the accuracy of the measurement, which indeed seems to be satisfactory.

The calculation is now as follows:

Metr.  $\alpha=220 : 536.8=41\frac{0}{10}\%$  of  $P$  ( $A=59\frac{0}{10}\%$ ).

Imit.  $\alpha'=215.6 : 535.1=40.3\frac{0}{10}\%$  of  $P'$  ( $A'=59.7\frac{0}{10}\%$ ).

The probable error in the 215.6 found is certainly so slight, that we may, with a safe conscience, save ourselves the trouble of the calculation (not the ascertained values of  $\alpha'$ , between which all the difference is, but  $\alpha' : P'$ , for each observation, should be the basis of the calculation). Yet there appears to be a personal error of 0.7 of the percentages found, and sometimes this is much greater.

A second example, in which  $\alpha'$  alone was alternately determined (method  $b$ , conf. fig. 4):

No.	METRONOME		IMITATION	
	$2P=\frac{1}{3}T'$	$\alpha$	$2P'$	$\alpha'$
3	47.2	10.8	47.2	10.9
4	47.2	10.6	46.8	11.
5	47.3	10.9	47.2	11.4
6	46.9	10.7	47.4	11.
7	45.7	10.4	45.4	10.4
8	44.	10.2	44.4	10.3
9	44.7	10.	44.2	10.6
10	45.2	10.2	45.6	10.8
11	44.4	10.	45.	11.
12	45.	10.1	45.6	10.6
	457.6	103.9	458.8	108

Here the same remarks hold good as above. The percentages of  $\alpha$  and  $\alpha'$  are now found by dividing by the *half* of the ascertained *double* periods. Consequently:

$$\alpha = 104.9 : 228.8 = 45.4\% \text{ of } P \text{ (} A = 54.6\% \text{)}.$$

$$\alpha' = 108 : 229.4 = 47.1\% \text{ of } P' \text{ (} A' = 52.9\% \text{)}.$$

By a very small probable error, a difference of 1.7 of the percentages is here found, which again is to be ascribed to a personal error: that  $\alpha'$  is above found too low, and here too great, is probably connected with the different values of  $P$  and  $\alpha : P$  for the two cases.

Lastly, I add an example in which  $A'$  is determined (conf. fig. 4,  $J'M'$ ), in which therefore the distance between  $II$  and  $I$  was alternately imitated (method  $c$ ).

No.	METRONOME		IMITATION
	$2P = \frac{1}{43}'$	$A$	$A'$
3	37.2	10.5	10.2
4	40.2	11.8	10.4
5	42.7	12.5	12.5
6	44.3	13.5	13.2
7	43.2	13.5	12.
8	43.	12.6	12.4
9	44.	13.3	13.4
10	44.3	13.3	14.5
11	43.5	13.	13.5
12	44.7	13.6	14.5
13	43.2	13.4	13.
14	42.5	13.3	13.7
	513.4	154.3	153.3

As  $A : P$  and  $A' : P$  we find the percentage values of  $A$  and  $A'$ , and by subtracting the quotients obtained from 100, those of  $\alpha'$  and  $\alpha$ , which last, even when  $A'$  had been determined, are, to facilitate inspection, taken into the Tables.<sup>a</sup> The calculation in this case yields:

$$A = 154.3 : 256.7 = 60.1\% \text{ of } P \text{ (} \alpha = 39.9\% \text{ of } P \text{)}.$$

$$A' = 153.3 : 256.7 = 59.7\% \text{ of } P \text{ (} \alpha' = 40.3\% \text{ of } P \text{)}.$$

These three examples are sufficient to illustrate the method of observation

<sup>a</sup> All the observations and the great majority of the measurements occurring in this investigation have been made by myself. In the few series in which I intrusted the measurements to others, I had, in the equality of the sum of the periods  $P$  and  $P'$ , a test of the accuracy of their work. When I myself made the measurements, it was sufficient to determine either  $P$  or  $P'$ , after I had repeatedly found that with me the results did not differ.



and calculation. I now add what was found according to the three modes of observation, with different values of  $P$  and  $\alpha:P$ , as  $\alpha'$ . Of the first series I communicate all the revolutions, with a statement of the number of observations in each revolution.

Series I.  $P=52\frac{1}{2}'$  (52 double strokes in the minute);  $\alpha:P$  about equal  $\frac{2}{3}$  (from 38.9 to 43.1 $\frac{0}{0}$ ).

No.	$\alpha$ (Metronome)	$\alpha'$ , obtained by			$\alpha-\alpha'$	Number of Observations
		method $a$ (imit. of $\alpha+A$ )	method $b$ (imit. of $\alpha$ )	method $c$ (imit. of $A$ )		
1	39.9	39.			0.9	13
2	38.9	38.2			0.7	14
3	41.8	39.5			2.3	18
4	41.5	39.2			2.3	20
5	43.1	42.7			0.4	21
6	42.2	39.2			3.	19
7	41.	34.8			6.2	24
8	41.2	36.8			4.4	20
9	41.4	40.7			0.7	20
10	41.	40.3			0.7	20
11	40.7		38.8		1.9	11
12	40.9		40.1		0.8	12
13	41.		38.9		2.1	8
14	40.8		38.7		2.1	12
15	41.5		39.		2.5	12
16	41.4			39.	2.4	12
17	41.6			41.5	0.1	11
18	41.3			40.6	0.7	12
$a$	41.2	39.1			2.1	189
$b$	41.		39.1		1.9	55
$c$	41.4			40.4	1.	35

The calculated final averages for each of the three modes of observation are here introduced as  $a$ ,  $b$ , and  $c$ :  $\alpha'$  here appears in all the observations, and consequently also in the final averages, to be less than  $\alpha$ . I have chosen the series in which  $P$  is greatest, although the deviations in this prove to be much greater than in most others. By the method  $a$  we can imagine the accent on either the sound *I* or *II*, at pleasure; in making the experiments this was distinguished, but it yielded no constant differences, so that to simplify the Table I have comprised all the observations, performed according to the method  $a$ , in the same column.

Series of observations, similar to that here communicated, were now made also with other values of  $P$  and  $\alpha:P$ . In general they appear much

better than the above. But for the sake of conciseness, we must confine ourselves to a statement of the final averages, which are collected in the subjoined table:

Series	$P=1'$ :	Method	$\alpha$ Metronome	$\alpha'$ Imitation	$\alpha - \alpha'$	Number of Observations
I.	52	<i>a</i>	41.2	39.1	2.1	189
	52	<i>b</i>	41.	39.1	1.9	55
	52	<i>c</i>	41.4	40.4	1.	35
II.	66	<i>b</i>	44.1	44.2	-0.1	8
	66	<i>c</i>	44.9	41.	3.9	11
III.	65	<i>a</i>	46.5	45.5	1.	44
	64	<i>b</i>	46.	45.6	0.4	60
	64	<i>c</i>	46.9	45.1	1.8	61
IV.	72	<i>a</i>	41.4	39.2	2.2	95
	72	<i>b</i>	40.	39.8	0.2	35
	72	<i>c</i>	38.8	37.7	1.1	34
V.	73	<i>b</i>	41.8	41.5	0.3	18
	72	<i>c</i>	39.2	39.3	-0.1	9
VI.	73	<i>b</i>	46.4	46.8	-0.4	9
	73	<i>c</i>	45.7	45.6	-0.1	9
VII.	82	<i>b</i>	46.3	45.6	0.7	9
	82	<i>c</i>	47.2	48.9	-1.7	10
VIII.	83	<i>b</i>	42.3	41.8	0.5	9
IX.	85	<i>b</i>	34.2	38.5	-4.3	31
	85	<i>c</i>	33.7	35.1	-1.4	31
X.	86	<i>a</i>	39.	36.6	2.4	53
	86	<i>b</i>	39.3	41.8	-2.5	54
	86	<i>c</i>	39.9	38.7	1.2	43
XI.	84	<i>b</i>	43.9	44.8	-0.9	35
	84	<i>c</i>	43.6	42.6	1.	33
XII.	94	<i>c</i>	44.4	43.5	0.9	11
XIII.	98	<i>b</i>	38.2	37.2	1.	13
XIV.	97	<i>b</i>	40.3	40.7	-0.4	11
	97	<i>c</i>	42.5	42.5	0.	7

This table, deduced from not less than 1,022 observations, exhibits the degree of accuracy I attained to in imitating the rhythm. On an average the error amounts to 1.25 in the percentages. At first, experimenting with slight frequency of the strokes, I usually reproduced  $\alpha$  too low,  $A$ , too high. Subsequently I found that not unfrequently the reverse takes place: in three examples  $\alpha'$  is twice too low and once too high, with about the same average error of 1.25. The greatest deviations occur when  $\alpha$  is comparatively little or else very great and nearly equal to  $A$ . No regularity is, however, to be traced in this matter. In order with every value of  $P$  and of  $\alpha$ :  $P$  to determine the personal error, it would be

necessary to experiment and measure for many months. For our object it is sufficient to know, that on an average a personal error of 1.25 of the percentages attaches to our observations of the rhythm of the pulsations of the heart hereto appended, and that this error will not easily increase to 2.50/0. Moreover, when the  $P'$  and  $\alpha : P'$  found for the heart correspond to one of the series, occurring in the above table, we shall be able to take into calculation the personal error found in this particular case.

IV. *Results obtained.*—The rhythm of the sounds of the heart was registered by different persons, almost without exception in the sitting position, sometimes in the state of rest, sometimes after previous bodily exercise. I made use of König's stethoscope, which I found particularly well adapted for hearing the sounds of the heart<sup>a</sup>.

It was applied in the region of the stomach, while two elastic tubes proceeding from it reached to the external auditory passages and had their ivory extremities fitted in the same. The fingers of the right hand were joined to one another, just above the marker, while the wrist rested at a suitable height. The rhythm of the cardiac sounds was now imitated by movements of the hand, before the cylinder came into motion, and so soon as it appeared that the rhythm continued regular, and that I had taken it up correctly, the signal was given by a slight movement of the head, whereupon the cylinder was set free, to stop after one circuit. The first observations, in which the cylinder had not acquired sufficient rapidity, were neglected. The heart's action is extremely rarely quite regular. It is therefore not possible to register all the sounds, and I soon confined myself to the alternate registration of  $\alpha$  or  $A$ , according to method  $b$  or  $c$ , which methods in testing the accuracy attainable by them, as appears from the above table, were then employed by preference.

To give an idea of the results obtained, I here append the observation of one circuit:

Series I. Mr. A., aged 21, short and stout.		
$\alpha$	2 $P$ .	$\alpha$ in per Centages of $P$ .
9.8	48.2	40.7
9.6	47.8	40.2
9.2	46.5	39.6
9.1	44.3	41.1
9.1	45.	40.4
7.9	43.6	36.2
7.3	40.	36.5
<hr/> Forward, 62.0		315.4

<sup>a</sup> In a subsequent communication, treating of the cardiac sounds with reference to the action of the heart, this stethoscope is described.

	$\alpha$	$2P$	$\alpha$ in per Centages of $P$ .
Over,	62.0	315.4	
	8.3	41.3	40.2
	7.6	41.2	36.9
	7.8	42.	37.1
	8.	40.8	39.2
	7.7	40.3	38.2
	<hr/> 101.4	<hr/> 521.0	consequently $\alpha=38.9\%$ of $P$ .

From the seconds registered at the same time I found that 62 pulsations occurred in the minute, consequently  $P=\frac{1}{3}\frac{1}{2}$ '. In the above series the numbers diminish downwards, which is to be ascribed partly to increasing frequency of the pulsations, partly to retardation of the movement of the cylinder: this too the seconds simultaneously registered shewed us. In the following table we now combine with the first, the results obtained with the subsequent revolutions of the cylinder in Mr. A., in the state of rest (to the modifications produced by movement we shall afterwards revert):

No.	$P=1:$	Method	$\alpha'$		Number of Observations	Remarks
			in percent-ages of $P$	in seconds		
1	62	<i>b</i>	38.9	0.376	12	(See preceding page).
2	63	<i>b</i>	40.8	0.395	9	
3	61	<i>b</i>	38.8	0.382	6	
4	63	<i>b</i>	40.2	0.383	6	
5	65	<i>c</i>	43.5	0.402	7	frequency increased by a swallowing movement.
6	66	<i>c</i>	38.6	0.351	8	
7	64	<i>c</i>	42.3	0.397	8	

We now combine the average of this Series, obtained in Mr. A., with the averages of the Series found in other persons with greater frequency of the pulse.



Name and age	Series	$P=1:$	$\alpha'$ in percent- ages of $P$	$\alpha'$ in seconds	Number of Observations
A. 22	I.	63·4	40·4	0·382	56
Br. 28	II.	74·4	40·6	0·327	59
Jac. 22	III.	77·	41·6	0·324	98
Kw.	IV.	78·	42·6	0·328	53
"	V.	79·7	42·3	0·318	31
Pan.	VI.	81·	44·4	0·329	75
"	VII.	81·5	42·6	0·313	75
St. 2	VIII.	87·7	42·8	0·293	28
L. 22	IX.	89·7	45·1	0·302	29
K. 23	X.	91·	45·6	0·301	61
H. 15	XI.	93·7	41·2	0·309	32

These series lead to the important result that, in the state of rest,  $\alpha$  is relatively greater the shorter the period. Hence it appears, that in different persons there is less difference in the duration of the active part of the period, than in the period in its integrity. It seemed to us sufficiently important to calculate the absolute duration of the active part of the period, and we see from the above table that, with the considerable difference in frequency of the pulsations from 74·4 to 93·7, the absolute value of  $\alpha'$  continues between 0·327 and 0·301. Only in the first series, where 63·4 pulsations occurred in the minute, does  $\alpha$  increase more considerably and indeed to 0·382 second.

We had occasion to determine  $P$  and  $\alpha'$  in a case of very slow pulse, occurring in John Vroomans, shoemaker, aged 57. Six months ago he had a fit, which he described as a sudden shock in the brain; he had fallen and had got a slight wound in the head, which however had been attended with no further serious consequence. The same day he got two slighter attacks, and subsequently also he continued not quite free from similar seizures. At the same time he suffered habitually from pain in the occiput, was asthmatic, and experienced difficulty in going up stairs. On the first examination he had, when sitting, 32 pulsations in the minute. In the subsequent investigations in which the seconds were at the same time registered, I found at first a still lower figure. We have put the results together in the subjoined Table.

No.	$P=1$ :	Method	$a'$ in percent- ages of $P$	$a'$ in seconds	Number of Observations
1	29	<i>b</i>	15.7	0.325	6
2	38	<i>b</i>	20.4	0.322	9
3	37	<i>b</i>	19.4	0.315	10
4	35	<i>b</i>	17.4	0.307	10
5	35	<i>b</i>	18.3	0.314	10

It is remarkable that  $a'$ , that is the active part of the period, does not in this case last longer than in a pulse nearly three times as quick. A stronger proof of the independence of the duration of the contraction from that of the period could not be adduced. The registration of the sounds of the heart was attended with no difficulty. In the sitting position at rest the heart's action was very regular, and spontaneously the observer was inclined, between each pair of sounds to imagine a second pair, which was not heard: the imitation might take place from the sounds heard just before, as in the ordinary method *b*, with this difference only, that during the imitation the second pair of sounds was absent, whose existence is properly speaking rather prejudicial than advantageous to the observation. The regularity of the heart's action was in this case so great, that, as shall be communicated in a subsequent paper, I even succeeded in making some strokes consecutively coincide precisely with the cardiac sounds.

It is well known that in a standing position the pulse is quicker. In the annexed we find the results in the same person in a sitting and in a standing position compared.

Name and age	Position	$P=1$ :	$a'$	$a'$ in seconds	Number of Observations	Remarks
Br. 28	sitting	63.4	40.6	0.327	59	
	standing	83.6	41.5	0.298	85	

Evidently with the increased frequency of the periods, in consequence of a standing position, the relative value of  $a$  only slightly increases, the absolute on the contrary strongly diminishes. Such observations must, however, be performed on a greater number of persons, in order to be able thence to deduce a general rule.

The results obtained with the altered frequency in consequence of bodily exercise are very remarkable. The individuals were examined in a sitting position after having gone a few times quickly up and down stairs.

In Mr. A., to whom the first series above communicated refers, we found the following :

No.	State	$P=1:$	Method	$\alpha'$		Number of Observations	Remarks
				in percentages of $P$	in seconds		
Average	In rest	63.4		40.4	0.382	56	(See above)
1	After exercise	74	<i>b</i>	36.5	0.296	9	Some minutes' rest had preceded.
2	1 minute later	68	<i>b</i>	33.3	0.294	8	
1'	After repeated exercise	124	<i>b</i>	41.2	0.199	15	Immediately.
2'	$\frac{1}{2}$ minute later	80	<i>b</i>	39.2	0.294	9	Rapid breathing.
3'	1 minute later	70	<i>b</i>	34.8	0.298	7	Rapid breathing.
4'	$\frac{1}{2}$ minute later	68	<i>b</i>	38.1	0.336	7	Breathing much less rapid.
5'	2 minutes later	72	<i>b</i>	40.1	0.334	7	
6'	1 minute later	71	<i>b</i>	41.4	0.35	9	
7'	$\frac{1}{2}$ minute later	67	<i>c</i>	39.8	0.356	8	
8'	$\frac{1}{2}$ minute later	68	<i>c</i>	40.9	0.361	6	

It is remarkable that, while with greatly increased frequency, immediately after exercise (compare 1'),  $\alpha$  has become relatively greater, a few minutes later the frequency diminishes considerably (1 and 2, as well as 2' and 3'), and that at the same time  $\alpha$  becomes relatively much less. Subsequently the pulse becomes again somewhat quicker and still the relative value of  $\alpha$  approaches more and more to the state of rest. It occurred to me that the diminished frequency of the pulse, shortly after exercise with quick breathing, might indeed be connected solely with the need of quick breathing. The result of a remarkable experiment which I am unable to refer to its author, but which I first saw with Pflüger, and yearly repeat in my lectures, is pretty generally known. It is this: that in a rabbit whose chest is opened, so long as artificial respiration is kept up, the pulsations of the heart proceed regularly, but that, when the artificial respiration is no longer continued, with the efforts at respiration then setting in, before asphyxia is yet imminent, the heart nearly stops, or rather exhibits very long periods of rest between its contractions. Now the retardation of the pulse, shortly after great exertion, likewise suggests the idea of imperfect respiration and irritation of the nervus vagus. It is, however, possible that the mechanism of respiration itself, with the

accompanying alteration of pressure in the thorax, gives rise to the peculiar retardation. However this may be, the fact is established. The latter acquires still higher signification, when we see how little the absolute duration of  $\alpha$  is affected by it: this still continues short, when the pulse is only slightly quickened (No. 2 and No. 3') and increases from 0.294 to 0.361, without any perceptible retardation of the pulse. The independence of  $\alpha$  is thus again exhibited.

I have proved much the same in other persons. The retardation of the pulse becomes shortly after exercise, sometimes so considerable, that with the subsequent increase,  $\alpha$ , although it has become absolutely greater, remains relatively less. We see this in the following example (compare 1, 2, 3):

No.	State	$P=1:$	$\alpha$	$\alpha$ in seconds	Number of Observations	Remarks
P. average.	Rest	81	44.4	0.329	31	General Table See page 234
1	After exercise	78	36.7	0.282	7	Not immediately.
2	1½ minutes later	107	40.9	0.229	13	
3	2 minutes later	94	44.7	0.285	6	
1'	After repeated exercise	126	39.7	0.189	15	Immediately.
2'	1½ minutes later	105	39.4	0.225	15	
3'	1½ minutes later	98	40.9	0.250	8	

On repeating the exercise 1', 2', 3') the retardation of the pulse did not again occur, but we see the value of  $\alpha$  relatively and especially absolutely diminish and gradually approach to that of the state of rest.

In the two following young persons too the retardation of the pulse scarcely occurred after exercise, but the relative, and, much more still, the absolute diminution of the value of  $\alpha$ , which regularly approaches that of the state in rest, is in each instance evident.



No.	State	$P=1:$	Method	$\alpha'$		Number of Observations	Remarks
				in per- centages of $P$	in seconds		
K average	In rest	91		45.6	0.301	61	(above x.)
1	After exercise	137	$b$	44.1	0.193	8	
2	0.5 minute later	114	$b$	42.7	0.224	12	
3	After exercise	103	$c$	48.2	0.28	13	
U. average	In rest	937		48.2	0.309	32	(above xi.)
1	After exercise	131	$b$	42.5	0.195	9	29 Oct.
2	0.5 minute later	107	$c$	45.1	0.252	10	
3	1 minute later	110	$b$	48.1	0.262	15	2 Dec.
1'	After exercise	127	$b$	43.8	0.207	9	
2'	0.5 - 1 min. later	126	$b$	44.1	0.21	9	
3'	0.5 min. later	122	$b$	48.5	0.239	8	
4'	1 min. later	108	$b$	46.5	0.258	12	

On the other hand, the retardation of pulse in an asthmatic boy, which, because he was sickly, was not included in the General Table (p. 234) of the averages, but of which, nevertheless, I here communicate, for the sake of comparison, the average in the state of rest, was remarkable. All the observations were made according to method  $b$ , which, in the end, affords the best results.

No.	State	$P=1:$	$\alpha'$		Number of Observations
			in per- centages of $P$ .	in seconds	
H. average	In rest	79.3	47.1	0.356	39
1	2 minutes after exercise	81	37.8	0.287	7
2	0.5 minute later	63	38.6	0.367	

Immediately after the exercise, before registration was possible, the pulse was quick, and at the same time  $\alpha$  was nearly equal to  $A$ . It was only subsequently that the periods became much greater, with panting

and irregular respiration, and  $\alpha'$  was found relatively much less, as is to be seen in 1 and 2. It would be desirable in such cases at the same time to register the respiration, which I shall hereafter not neglect, now that Marey<sup>a</sup> has placed at our command so simple a method of doing so.

Much remains still to be investigated, with respect to the modifications which the rhythm of the sounds of the heart experiences under different circumstances. In particular I have laid out to study in man the influence of digitalis and in animals that of irritation of the vagus. I also hope to present some contributions in the field of pathology. By continued practice I have gradually attained greater accuracy in registering; perhaps also the study of music, which I began early, and have never wholly given up, is not without influence thereupon. The profession has therefore some right to expect that I should proceed with the application of the method to particular cases. Meanwhile I hope in a subsequent communication to show the connexion between the sounds and action of the heart, which has become feasible by simultaneous registration of the impulse and sounds of that organ.

#### V. *Corollaries.*

1. The cardiac sounds are distinguished as *I* and *II*. The distance from the commencement of *I* to that of *II* is  $\alpha$ , that from *II* to *I* is  $A$ . The period  $P = \alpha + A$ .

2. The frequency of the pulse being given, the rhythm of the sounds of the heart teaches us  $\alpha$  and  $\alpha : P$ , that is the absolute and the relative duration of the active part of the cardiac period.

3. The rhythm of the sounds of the heart can be imitated by movement of the hand and so be registered.

4. The accuracy of this method, tested by the imitation of a self-registering rhythm, has been shown to be satisfactory. The probable error is very slight; the personal error is variable with the values of  $P$  and  $\alpha : P$ .

5. In the state of rest  $\alpha$  amounts usually to from 0.309 to 0.327 of a second, and continues tolerably equal, with different values of  $P$ .

6. In this we have a proof, that  $\alpha$ , the duration of the active working of the heart, has a certain independence.

7.  $\alpha : P$  is, in the state of rest, the greater, the shorter the periods are; in young persons  $\alpha : P = 0.404$  to  $0.482$ , average  $0.428$ .

8. With increased frequency of the pulsations in consequence of work (rapid ascent of stairs),  $\alpha$  on the contrary often diminishes more quickly than  $P$ , and  $\alpha : P$  therefore becomes less, the less  $P$  is.

9. A few minutes after work is performed, the cardiac periods usually become, with strong and quick respiration, temporarily very long, but  $\alpha$

<sup>a</sup> Journal de l'anatomie et de la physiologie de l'homme et des animaux. Juillet, 1865.

continues in general short, so that then  $\alpha : P$  is less than ever. The independence of  $\alpha$  is thus again demonstrated.

10. In the standing posture  $\alpha$  becomes perhaps relatively somewhat greater, but absolutely considerably less than in the sitting.

*On Albuminuria.* By DR. ERNST ÆDMANSSON. From the *Hygiea*, Monthly Journal of Medicine and Pharmacy. Stockholm: May, 1866. Translated by H. MINCHIN, A.B., M.B., Fellow and Professor of Botany, Royal College of Surgeons, Ireland.

AMONG the means which may be employed for the detection of albumen in the urine, nitric acid and heat have properly been most constantly and generally employed. The examination of urine by such means was considered at first to be comparatively easy. However, a more close study soon brought to light several sources of error. We have gradually obtained a much clearer insight into the practically-important subject through the valuable labours of Bence Jones and others; but still some questions remain unexplained.

The difference which albumen exhibits in its relation to reagents is as yet uninterpreted. It has generally been considered to depend partly on the existence of varieties of albumen, partly on the operation of other matters which may be present in the urine.

The fact that modifications of ordinary albumen may appear in the urine seems to be brought to light by the well-known observations of Bence Jones, in a case of osteomalacia, where he found an albuminate, which, according to its reactions, could hardly have been the ordinary albumen of serum. This observation, which is now as old as the year 1848, is, however, singular of its kind. Of importance to the decision of the question is the assertion of Gigon, Bechamp, and Harley, that in all fresh urine is found an albuminoïd substance (the "nephrozymas" of Bechamp), which Harley places near to pepton, but which Bechamp proves to be as different from this as from albumen. The supposition of chemically-different forms of albumen may receive some support from a consideration of the fact that albuminuria is capable of being produced by widely different pathological processes within and without the kidney, because by that means slight differences in the composition of the albumen admit of being taken into account as well as those more considerable which are admitted to occur normally within the organism. Experience indeed proves that, in its most palpable features, albumen may react in the same way in various forms of disease; yet a more searching inquiry may lead to the discovery of some constant differences, however slight.

On the other hand, there exists in the urine a solvent of albumen, which undergoes very considerable alterations in composition under

different physiological and pathological conditions. Experiment proves that, by the addition of a material which is already to be found in normal urine, we can alter considerably the reactions of albumen. These may be dissimilar, not only in the same forms of disease, and in cases where the patients have been subject to the same treatment, but even in the same case at different times. The concentration of the urine also exerts a constant influence on certain of these reactions, of which more anon. Investigations pursued in this direction will, in all probability, lead to the conclusion that deviations from the ordinary state, whenever they occur, admit generally of being explained by the composition of the urine.

This variableness in the appearance which the albumen assumes is not merely a matter of theoretical interest, but a knowledge of it is of very great importance to an accurate clinical investigation of the urine. The detection of albumen is, perhaps, not attended with any difficulty when this substance is present in any large quantity; but when its amount is inconsiderable the matter does not always appear so easy. In judging of the quantity of albumen errors are easily committed, unless we proceed according to a method the employment of which will, under all conditions, lead to the precipitation of the entire of the albumen that is present.

It was at first my intention merely to put forward some remarks upon the influence which different degrees of concentration of the urine in certain cases may exercise on the reactions of albumen, and which hitherto appear to have escaped observation. In consideration, however, of the importance of these examinations of urine, and the incompleteness with which they are discussed in the generality of manuals, with the exception of Beale's (*Urine; Urinary Deposits, &c.* London, 1864), my entering somewhat more fully into the subject may possibly be of some service to those who have but lately entered upon the field of these inquiries.

TEST FOR ALBUMEN BY MEANS OF DILUTE NITRIC ACID (ACID. NITR. DILUT. OF THE SWEDISH PHARM. SP. GR. 1.25) AT THE ORDINARY TEMPERATURE.

In the application of this test we proceed either to add five or six drops of this acid to a like number of ccm. of urine in a test tube; or, according to the method of Heller, we allow the acid, in somewhat larger measure (twenty or thirty drops), to flow down along by the side of a glass previously filled to one-third or one-half with urine. In the former case, if the urine contains much albumen a deposit takes place at once on the mixture of the acid with the urine, or else immediately over the acid when this sinks to the bottom; in the latter case the deposition of albumen is usually formed just above the acid, in the form of a smooth disk whose



upper and lower surfaces are defined by a more or less sharp outline. A modification of Heller's mode of proceeding consists in the cautious addition of the urine to the acid previously iced in the glass. Of the two principal methods, that of Heller deserves a decided preference, because (1) the reaction elicited by this method is, in general, far more characteristic; and (2), according to the others, if the amount of albumen in the urine be inconsiderable, we often obtain only a diffuse cloudiness, while in some cases we perceive no reaction if we use merely a couple of drops of acid; whereas the test in the same case, applied according to Heller's method, will give a manifest and definite result; and (3) the other is not applicable to cases in which the urine contains a large quantity of lithates.

This test is applied in such a way that the acid is allowed to run down along the side of a test-tube containing urine, and it is only a modification, or rather a corruption, of Heller's procedure. The only advantage it has is that we can immediately, at intervals, employ the same glass and the same urine for the further test by means of heating. In such cases, however, we should add somewhat more of acid than the quantity above directed—say about 10-15 drops to 5-6 ccm. of urine.

A good test for albumen, where this is present in large quantity, consists in adding the nitric acid guttatim to the urine previously introduced into a tall glass cylinder. After the first few drops of acid, a heavy precipitate is formed, which sinks down with tolerable rapidity, and is usually redissolved afterwards. Gradually, as more acid is added, the solubility of the precipitate is diminished, and it finally settles down at the bottom of the glass in the form of small rounded or irregular masses, which have some resemblance to the chloride of silver precipitated under similar circumstances. The precipitate sometimes sinks at once heavily to the bottom. These characters of the deposit—namely, its form, heaviness, and its solubility while sinking, constitute altogether a peculiarity which does not belong to any of the usual normal constituents of urine.

The albuminous disk obtained by Heller's method, or its modification, takes its place, as we have said, immediately over the acid; but, where the albumen is only to be found in small amount, and the sp. gr. of the urine is not very low, it may be observed not unfrequently to lie at a higher level in the vessel. Its density stands, moreover, in a direct relation to the quantity of albumen present, while its volume is not defined in this way alone. It may be so pellucid, in specimens containing a very small proportion of albumen, that it can only be rendered visible in certain lights; and in some cases it becomes evident only after the lapse of one or two minutes, for which reason we ought always to wait some little time before the experiment can be said to have given a negative result. Sometimes we find above the acid only a slight

cloudiness without any defined upper limit, and this might easily lead us to suppose that the specimen is free from albumen. This, however, does not happen unless we perform the experiment with a specimen which was muddy at the commencement; we should, therefore, adopt the mode of filtering the urine in every case where it is not clear.

With this test a layer of precipitated lithates is usually formed nearer to the free surface of the urine, and this layer is separated from the albumen by a more or less clear interval—a circumstance which in a high degree betokens the characteristic nature of the test. The upper surface of this layer is also uneven, but may, sometimes, when the layer is thin, be not more uneven than the surface of the albumen. Sometimes both layers become mixed or melted together, and thus the test becomes frustrated.

We may be quite certain of finding this reaction if the urine contains albumen, provided that the precaution above stated has been attended to. On the other hand its appearance merely declares that in all probability there is albumen present, for this substance may be simulated by other things; lithates, for example, especially if we use but a small quantity of urine, and if we do not add a sufficiency of acid. In general, however, the lithates ought not to mislead, while the test must always be regarded as of little value, unless the reaction be very evident; that is to say, unless we find a clearly defined deposit to lie immediately above the acid, or, as is usually the case, we find two layers divided by a clear interval. The agglutinated crystalline mass of nitrate of urea, which is sometimes suspended immediately above the acid, is, with a little attention, easily distinguished from the albumen along with which it sometimes appears. On the contrary, lithic acid may occasionally fall down, and form just above the nitric acid a layer which might easily be mistaken for albumen. Along with this, and higher up in the liquid, may float a layer of lithates, whereby the risk of error is augmented in a high degree. Sometimes three layers are formed—a lower one of albumen, and two, lying close to one another, above, which latter soon become amalgamated into one. If we remove the albumen, by heating and filtration, from another portion of the same urine, and afterwards repeat the experiment with the filtrate, we shall obtain two well-defined layers, of which the lower consists of lithic acid. The lithic acid layer has for the most part a faintly brownish tint. This lithic acid is not always amorphous, as some authors maintain, for, upon examining it immediately with the microscope, we can detect numerous well-developed crystals, which, however, are very minute, and of variable form. The substance, to the formation of which the use of copaiba, cubebs, and matters akin to these, sometimes gives rise, may tend to mislead with this test; an example of which will be adduced further on.

TEST FOR ALBUMEN BY HEATING, WITH OR WITHOUT THE ADDITION, OF  
NITRIC ACID.

In a specimen of urine which contains albumen, the application of heat usually gives rise to a precipitate of albumen if the urine be acid ; none, or an imperfect one, if it be alkaline. We ought, therefore, before performing this test, to ascertain whether the urine is acid, and if it be not so, to add a small quantity (one or two drops) of dilute acetic acid, in order to communicate a slight degree of acidity.

The point of coagulation of albumen is subject to very considerable variation. If this substance be present in large quantity, a deposit makes its appearance after a slight application of heat, and first in that part of the urine which is nearest to the source of heat ; in other cases a higher temperature must be employed, whereupon the deposition begins to form at the free surface of the liquor. When the proportion of albumen is very small, there appears frequently, after a rapid ebullition of the urine, only a mere opalescence or cloudiness, from which, after the urine has cooled, there sometimes subsides a distinct precipitate ; occasionally, however, it fails even then to appear. Less frequently we meet with urine, which, notwithstanding that it contains albumen, and has an acid reaction, continues still clear even after prolonged boiling. In the cases in which I have observed this condition, the urine had a pretty high specific gravity (1·019, or higher), and generally a strongly acid reaction, with a high colour ; the albuminuria has existed along with some acute disease, such as pneumonia, typhoid fever, &c. According to Bence Jones, who first observed this phenomenon, authors have pretty generally adopted the opinion that this depends upon the presence of free nitric acid in the urine. We find, however, similar cases, in which the patients have not been taking any nitric acid or nitrates, while, on the other hand, we may administer considerable doses of this acid without communicating to the urine the property in question.

In fact, we meet with all transitions among cases—we are only alluding to those in which the urine contains a minute quantity of albumen—from that where the albumen is precipitated by a gentle application of heat, to one in which no coagulation can be effected. This unequal tendency to precipitation by heat does not stand in any definite relation to the quantity of albumen which is present. It cannot generally depend on a dissimilar chemical composition of the albumen, for it is met with in several cases of albuminuria arising from the same cause, and even in the same case at different times. We may, therefore, assume that it probably has its origin in the variable composition of the urine. The concentration of this fluid appears to exercise a certain influence, for the albumen, in general, has a greater tendency to precipitate in specimens of a low than



in those of a high specific gravity. The reason of this, in all probability, is that the material, whatever it may be, that prevents the precipitation is, as a rule, present in much larger proportion in a concentrated urine. The degree of acidity in the urine is certainly an important item; however, a urine which contains an easily coagulable albumen may be equally acid with one of difficult coagulability. The principal question perhaps is, upon what acid or acids does the acidity of the urine depend? On some occasions I believe I have been able to remark that the coagulability of the albumen has been diminished during the acid fermentation of the urine.

The experiments I have contrived, with a view of altering the relation of the albumen to the action of heat, by adding to the urine a solution of the saline matters which enter normally into its composition, have not as yet led to any certain result. Acid phosphate of soda prevents, indeed, the precipitation of albumen; but with respect to the quantity of the salt which is required for the purpose it is worthy of remark, that when a few drops of a stronger solution are sufficient for a urine of a low specific gravity, a quantity four or five times larger will be required when the urine is more strongly concentrated, even though its proportion of albumen be tolerably small. Even the degree of acidity which the urine possesses will appear to exert some influence, requiring the addition of much of the saline solution. Thus I have found sometimes that of two specimens of urine, having a low specific gravity, and a considerable amount of albumen, but of which one was strongly acid, and the other neutral or weakly acid, the former remained clear upon boiling, after the addition of a much smaller quantity of salt solution, than the latter; this tends strongly to establish the inference that the former contained a larger amount of phosphates than the latter. From this it will appear that in such cases the phosphoric acid already present in the urine, adds its efficacy to that which is subsequently added. That it is less in a condition to hold the albumen in solution, when the urine is more strongly concentrated, is shown by the counteraction of its efficacy by means of another material. The discovery of this ought to supply the key to an accurate estimation of the cause of the dissimilar bearing which the albumen of urine exercises towards heat.

In order the more completely to precipitate the albumen, we are often in the habit of adding a little acetic acid before applying heat. This mode of proceeding, however excellent where the quantity of albumen in the specimen is inconsiderable, is frequently insufficient when an opposite condition is present. It will answer just as well to use a little nitric acid; but here, even more than in the case of acetic acid, we should take care to employ an excess, in order to avoid the production of the very contrary effect to that intended; that is to prevent the precipitation. A better plan than either of these is—before the application of



heat, to make the urine strongly acid by means of acetic acid, and then to add to it a concentrated solution of sulphate of soda, a procedure which has been highly recommended by Hoppe. Chloride of sodium will answer the purpose equally well.

As the albumen does not always fall down upon the application of heat to an acid urine, since the precipitate that takes place frequently fails to correspond to the amount of albumen present in the urine; and whenever also, the phosphates can be thrown down by the boiling of even considerably acid urine, it will be necessary, frequently, that we make further trials, in order to be certain whether it be present, and in what quantity. This consists in the addition of nitric acid to the boiled liquid. Now, it is generally stated in the books that if the precipitate thereby produced does not re-dissolve, it consists of albumen; in other cases, of phosphates. In this, however, there is a great error, inasmuch in the cases in which the sp. gr. of the urine is low, the precipitated albumen can be completely re-dissolved by the addition of one or two drops of nitric acid to the boiling urine. The solubility of the precipitate stands in an inverted relation to the sp. gr. of the urine, and ceases, as far as my experience extends, when the urine has a density of 1.016, or thereabouts, even for minute quantities of albumen. At a higher concentration a small precipitate is partially re-dissolved on some occasions, or may disappear upon heating, but only to reappear as the liquid cools. We may sometimes meet with specimens of urine of a somewhat lower sp. gr., 1.013—1.014, in which even a little precipitate does not dissolve. The solubility appears to be greater, *cæteris paribus*, where the urohematin is present in small quantity, as is usually the case, in chronic renal affections, than where the colouring matter is more abundant. It may be greater in an originally highly acid than in a neutral, or faintly acid urine, even though the former should have the same proportion of albumen; nay, even if it should have a somewhat higher specific gravity. When we find in this way that a large quantity of phosphatic salt is present in the urine, it would appear that the phosphoric acid can, in some mode or other, contribute to the solubility of the precipitated albumen, as it has shown already to be probable that, under the same circumstances, that is, when the urine has a low specific gravity, it may counteract its precipitation.

In order that the precipitated albumen may be dissolved by the addition of nitric acid, it is necessary that the urine be still boiling hot or that it be boiled again. Even if the precipitate be completely cooled down, it re-dissolves upon heating it with a little acid. This will take place whether the acid be added before or during the boiling. In performing experiments of this kind it is of the highest importance that we employ a due quantity of acid, but this may vary in some small degree under dissimilar conditions. If we continue to add the acid by drops to the urine previously cleared, this fluid begins soon to grow muddy again,

and the precipitate increases until a certain quantity, usually 12 or 15 drops, has been added.

By diminishing the concentration by adding distilled water, we can in each case of albuminous urine, arrive at a point at which the precipitate obtained directly by heat becomes soluble on the addition of a small quantity of nitric acid, whereas previously this was not the case. From these experiments, then, it would appear that the solubility of precipitated albumen is very closely connected with the concentration of the urine.

Some authors have advised the employment of hydrochloric or acetic acid in place of nitric, in testing for albumen, thereby assuming that albumen is absent if the precipitate produced by heat be soluble in one or two drops of either of these acids. As far as respects the hydrochloric, this supposition is not correct, because this acid is able, under the same conditions as nitric, to dissolve the precipitate; but nitric acid is less to be depended upon, as this does not, in such minute quantity, exercise a solvent action upon albumen.

The deposit which occurs in albuminous urine when nitric acid is added at the ordinary temperature, re-dissolves, for the most part, completely upon stirring, if we use only one or two drops of acid. Urine treated in this way usually remains clear upon being heated. Beale assumes this last condition to be constant, but I have sometimes met cases where, notwithstanding the observance of the strictest precaution in the addition of the acid, the urine still grew cloudy on the application of heat, whilst in other cases it was quite clear at a high temperature, but became cloudy as it cooled. In these cases the urine had always a high specific gravity. After mixing with the urine a certain quantity of a concentrated neutral saline solution, nitric acid ceased to hold the albumen in solution upon heating the urine. The greater the proportion of albumen in the urine in such case, the less of saline solution is required to be added. The quantity of acid which is generally necessary in order to keep the urine clear upon heating varies in some degree, for which reason much caution must be used in experimenting according to this method. A trace of nitric acid or a slight excess causes little or no hindrance to the precipitation. Sometimes the urine clears upon heating, even though a slight cloudiness was found at ordinary temperature. Without requiring to know this dissimilar operation of nitric acid, we ought, therefore, never, in ordinary experiments on urine, to add the nitric acid before boiling, and always to be very careful how we employ a test tube, in which some acid from a previous experiment may be remaining.

This solubility of albumen by heat, after the addition of a little nitric acid, is explained by Bence Jones, by saying that the albumen forms a compound with the acid, which, even at high temperatures, is soluble in

very dilute acid ; whilst Beale endeavours to show, by means of experiment, that nitric acid expels phosphoric acid from its combinations, and that the latter, as long as no excess of nitric acid be present, retains the albumen in solution.

It has been shown by what precedes, that we cannot infer the absence of albumen, if the deposit produced by boiling becomes re-dissolved by heating with only a few drops of nitric or hydrochloric acid. A somewhat larger amount of nitric acid must be employed. In general it may be assumed that 12–15 drops will throw down all the albumen from the quantity of urine usually operated on in these experiments, even though the original precipitate appeared to dissolve on the addition of the first few drops. In cases where the proportion of albumen is small, it is often necessary, after adding the acid, to boil the sample again, otherwise it may happen that the urine will only exhibit more or less of cloudiness, and that, even if the specimen be allowed to stand for some time, no actual precipitate will form. Even after the last boiling we must often, where it is a question of a small quantity of albumen, defer judging of the result until the urine has quite cooled, because the deposition at the higher temperature may be incomplete, and in some cases is hardly observable. Having effected, in this way, a complete precipitation of the albumen, we find this not unfrequently to exist in a much greater quantity than we should have been led to expect according to the preceding experiments.

The albuminous deposit, obtained by one or other means, is soluble on heating it with excess of nitric acid. On allowing, then, the deposit to settle down, pouring off the clear liquor and boiling the residue with its own volume, or, better still, with twice its volume of nitric acid, the precipitate is re-dissolved.

From all that has preceded, it follows that an albuminous urine may be affected in the most dissimilar ways by boiling, with or without the addition of nitric acid ; and nothing but an accurate acquaintance with these facts can, under all circumstances, guard against errors, especially in cases where the albumen happens to be present in minute quantity. The best mode of proceeding in the examination of urine is the following :— One part of urine, which, if possible, should be filtered, is tested according to the method of Heller, or the modification of it already spoken of, which latter not unfrequently gives a sharper outline to the layer of albumen than the former. If the reaction be evident, although ever so slight, then in all probability the urine contains albumen ; in case of its non-appearance, we cannot be sure until after some minutes. We ought, if necessary, to examine the specimen in different lights. Another portion of the urine is boiled in a test tube, after we have ascertained its reaction with litmus paper, and if it be not distinctly acid, we add one or two drops acetic acid. Should no deposition make its appearance or



merely an opalescence, upon the first boiling, the liquid should be boiled for some time longer. Whether a precipitate forms now or not, 12 or 15 drops of nitric acid are added, after which it may, perhaps, be necessary to boil again. In doubtful cases the test is not decided until after the urine has cooled. If the experiment is to be performed rapidly, it is best, omitting other tests, to boil up the urine, add 12 or 15 drops of nitric acid, and boil again. When the albumen is present in large quantity, the test of Heller will be found sufficient, with a single heating of the acid urine. It may occasionally be of advantage to control Heller's by the test previously stated, in which the acid is poured guttatim into a large quantity of urine, as for, example, when we have not a spirit lamp at hand.

*Case of Renal Disease, in which, during the use of copaiba, a peculiar substance appeared in the urine.*

A soldier was admitted, some time ago, into the Garrison Hospital, labouring under sub-acute nephritis, without dropsy or symptoms, arising from affection of any other organ than the kidneys. The bleeding from the kidneys had ceased; the albuminuria, likewise the quantity of renal epithelium mixed with the urine, had diminished, when one day there appeared in the sediment a large number of pus-corpuscles and epithelial cells of various forms, such as are found in the upper part of the urinary tract. No signs of vesical irritation were present. After other remedies had been employed without effect, Bals. copaib. was administered in doses of twenty drops, three or four times a day. The cell-formation and the albuminuria began soon to be diminished, and, during several days, had been reduced to a very trifling amount, when the patient, after some time, was discharged in order to be further treated at home. On the day that he went out—he had been then taking copaiba for seventeen days—I examined the urine, and found to my astonishment that the test of Heller indicated the presence of a considerable quantity of albumen. A further examination of the urine gave the following result:—First—It was light yellow in colour, somewhat muddy, of a density of 1.022, with an acid reaction. Second—The deposit effected by the test of Heller was homogeneous, of a white colour, and lay immediately above the acid. Third—Acetic acid, nitric and hydrochloric, produced in the urine a considerable cloudiness, from which, in three days afterwards, no precipitate of lithic acid had fallen. The urine became again clear, on the addition of an excess of concentrated acetic or hydrochloric acid. Fourth—By direct and prolonged boiling, a very small precipitate was formed, which did not quite sink to the bottom. Upon warming the urine with the addition of a little acetic acid, it did not become clear; at a higher temperature the muddiness was somewhat increased. The opalescence which arose



from the addition of some few drops of nitric acid, did not disappear either by shaking or heating the test tube. Fifth—The precipitate caused by direct boiling, was not altered by one or two drops of nitric acid, but by boiling with fifteen drops of the acid it became more considerable. It was brown in colour, had the usual appearance of albumen, under the microscope, and became yellow when treated with dilute solution of iodine. This precipitate was probably somewhat more abundant than that which the urine a few days previously afforded in a similar experiment, but did not correspond to the quantity which the test of Heller now showed to be present. The urine became clear after several days.

No further experiments could be made, as, unfortunately, I had only obtained a small quantity of the urine.

In a week afterwards I had an opportunity of examining the urine of this patient, and I found it to contain then a minute quantity of albumen presenting the normal reaction.

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MR. BUTCHER ON GUN-SHOT WOUNDS.

CASE OF KELLY.

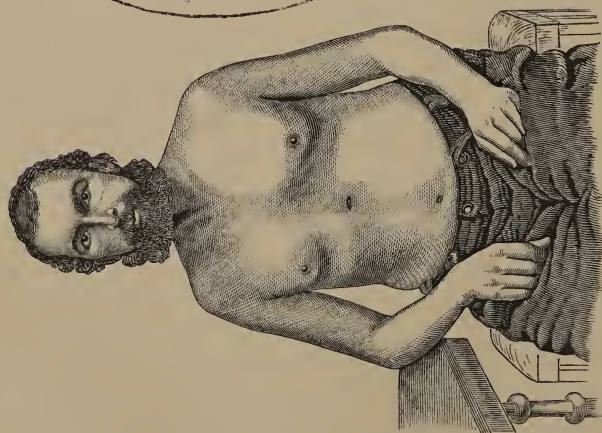


Fig. I.—Showing where the Bullet entered.

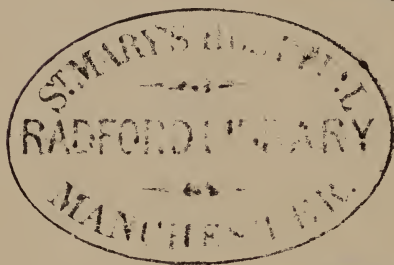


Fig. II.—Showing position of Wound made for extraction of Ball.

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MAY 1, 1868.

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PART I.  
ORIGINAL COMMUNICATIONS.

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ART. IX.—*Reports in Operative Surgery—Remarkable Cases of Gunshot Wounds.* By RICHARD G. BUTCHER, M.R.I.A. ; Honorary M.D. of the University of Dublin; Lecturer on Practical and Operative Surgery in Sir Patrick Dun's Hospital; one of the Examiners on Surgery in the University of Dublin; Ex-President of the Royal College of Surgeons in Ireland; Fellow, Licentiate, and Member of Council of that Body; late Senior Surgeon to Mercer's Hospital; and Lecturer on Clinical Surgery, &c.

I HAVE great pleasure in laying before the profession the following cases of gunshot wounds. They will, I consider, be found replete with interest to the physiologist, as well as to the practical surgeon, be he civil or military. I need not say with what anxious solicitude the lives of these two men, the subjects of these remarks, were watched over by a sympathizing and deep-feeling people. The repeated inquiries at Mercer's Hospital, early and late, by rich and poor, without distinction of creed, bears ample testimony to the unusual anxiety elicited in their behalf; from the manner in which their death-wounds were inflicted by the assassin, while in the

discharge of their trying and onerous duties as public officers. Though appealed to frequently to place on record the history of these remarkable cases, yet I declined to accede to the request, or to do so prior to, and while pending, the trial of a man suspected of the offence, but which case has now been adjudicated upon. From this cause alone I refrained from making any observations on the cases, knowing well the clemency of the Crown, sanctioned by justice, has ever been, as now, to favour mercy. The first case is remarkable from the terrible severity of the symptoms, and the rarity of injury to vital parts here struck, viz., the splitting of the right semilunar ganglion of the sympathetic system, and the breaking up of the solar plexus of nerves, together with the opening of the side of the inferior vena cava, the profuse escape of blood from it, and yet the hemorrhage arrested—life being preserved for many days—a week—by judicious management. The second case affords a fine illustration of the power which practical surgery possesses in saving life.

*CASE I.—Gunshot Wound about Three Inches below the Ensiform Cartilage; the Right Crus of the Diaphragm and Semilunar Ganglion of the Sympathetic Split by the Ball, and the Solar Plexus of Nerves broken up; the Side of the Inferior Vena Cava being opened, with a profuse escape of Blood, yet Life preserved for many Days—a Week. Post Mortem Examination revealing the Locality of the Ball.*

Police constable Patrick Kenna, aged twenty-eight years, was admitted to Mercer's Hospital under my care, October 31st, 1867, at a quarter past one o'clock, after being shot whilst on duty. The man believing that he was dying immediately after coming into the hospital, made the following depositions to a magistrate, and which tells his history as follows:—

“I, Patrick Kenna, Police Constable of the Dublin Police, believing myself to be in immediate danger of death, make this my dying declaration as to the cause of the condition in which I am now in—that about a quarter to one o'clock this morning I was standing at the corner of Essex-quay, near Mason's shop, when I saw a man at the opposite side, near the bridge, and as he seemed desirous to avoid me he attracted my attention; he passed across to the flagway of Wellington-quay; he had a whitish-coloured bundle under his arm; I called after him to wait, and he said, ‘I won't,’ and I followed quickly after him, and when about Duffy's



shop I overtook him I said, 'I will make you wait,' when he turned round, and when about a yard from me he presented a pistol and shot me in the belly; I wheeled back towards the bridge, and shouted and met a constable named John Hickey, who put me on a car and brought me here. Delivered at Mercer's Hospital, the 31st October, 1867.—PATRICK KENNA."

"The above dying declaration was made in my presence at four o'clock, a.m., at Mercer's Hospital, on the day above stated.—C. J. O'DONNELL, J.P."

On admission the patient was a pitiable spectacle—pale, haggard, wild looking; pale as death; greatly excited; tossing his hands and arms about, and screaming if it was possible he could recover. The body was cold; pulse feeble; and I never will forget the bewildered look of despair in which he implored to be rescued from pain—from the burning agony with which he writhed. On stripping the man, I found a small transverse wound about three inches below the extremity of the ensiform cartilage, exactly in the middle line. The wound was said to have been inflicted by a pistol ball, yet it had the exact appearance as if made by a worn shoemaker's knife; after such an instrument I have often seen similar wounds, and very like. The inversion of the edges was scarcely appreciable, it being so very minute; there was no laceration of the edges, or the least trace of discolouration; as I have said before, it resembled an incised wound. It was about three-quarters of an inch in length, and its long axis strictly transverse. There was no blood trickling from it; a few drops had stained his shirt; but all had ceased at this time. I cleaned the wound and parts around with a damp warm sponge, and there was, even then, no more weeping from it. As the poor fellow lay in the horizontal position in bed, stripped, I passed my hand gently over the region of the wound, and examined carefully all around the loins and back, to discover if possible the course of the bullet, but all in vain, and there was not a scratch upon his body but the one small sharp cut. It was a terrible thing to behold this strong man stretched there, screaming in agony, with this death-wound, inflicted only a few minutes before. Of course the idea of probing the wound was never entertained for a second, or any meddlesome interference. Suddenly the creature would jump up in the bed; again assume the sitting posture in it, with his legs drawn up, and his head drooping forward over his knees. During these writhings he

pressed away every one who approached, and would not suffer restraint. Heated jars were applied along the limbs and to the feet, and he was propped up by a bed chair after a little time, and warm stimulants and sedatives given. So low did his pulse at this time fall that quick repetition of stimulants was essential to sustain the heart's action; brandy and opium every two hours; a few grains of calomel were placed upon his tongue.

November 1st, 9 a.m.—Found the patient somewhat quieter as to pain, but vomited frequently dark green matter; pulse very feeble, yet soft; the same wretched anxious countenance, and a constant craving to cool his throat, and the “rasping feel” in it; he dozes for a few seconds, still every two or three minutes starts up alarmed, and asking if possible “to save his life;” slight pain referred to the lower part of the belly; but none to the wound or its locality; the wound looks just as on his admission—a mere transverse slit, apparently with no irritation or even life about it; bladder full; drew off with silver catheter fully a pint of naturally coloured urine, with, as he said, relief of the uneasiness in the pubic region; however, ordered—from the wound downwards and laterally to either iliac region—the belly to be stuped with flannels wrung out of boiling water, and sprinkled freely with laudanum; ordered a grain of calomel and a grain of powdered opium every second hour, and one ounce of brandy and twenty drops of laudanum every second hour; cold chicken jelly and beef-tea jelly in spoonfuls occasionally; hot jars to the feet. 12 a.m.—Quieter then in the morning; pulse fuller and steadier; heat of body very low; anxious expression of countenance as at first, and general restlessness persistent to gain a “better position;” however he is alive; to continue the stimulants; smeared over the lower part of the belly with mercurial ointment, over which the laudanum stupes to be continued. 3 p.m.—Stomach ever irritable and vomiting; ordered two drops of medicinal hydrocyanic acid to each dose of brandy and laudanum every second hour. 8 p.m.—Still in same restless watchful state; starting up rashly and suddenly, sometimes even with a scream from sudden pain deep beneath the wound; to continue everything. 11 p.m.—Somewhat quieter than at last visit; remains recumbent, and under control; pain abated. To continue medicines, stimulants, stupes, &c., all through the night; bladder again relieved of a pint of water; states himself voluntary that he knows he could make water, but the fear of hurting his belly prevents his attempting to do so; he has full power in the lower

extremities, both in sensation and motion, as evident by his occasionally starting out of bed, and walking a few steps before being controlled, without unnecessary violence.

November 2nd, 9 a.m.—Has had but little sleep; the same anxious watchful eye; pulse now up to 98, but no force or strength in it; the man is quieter, and not suffering such acute pain; vomiting occasionally, but above all things complains of the “tearing in his throat;” jactitation; the arms frequently thrown across the chest; and seeking for aid to the “internal feeling,” deep in, that he cannot describe, except as “tearing him.” This same terrible feel extends up the entire throat; urine passed this morning in full quantity by his own efforts, proving at once no nervous lesion of the spine. In addition to the plans laid down, stimulants, mercury, stupes, &c., added iced champagne when he wished for it, and a drop or two of hydrocyanic acid in it, according to time; pieces of ice to be placed constantly in his mouth to assuage the parched feel; and nutriment in the same concentrated nutritious forms to be frequently given. 12 a.m.—Heat of body now at its natural temperature, and the circulation established throughout thoroughly, but not in deranged inflammatory impetus. To continue everything as ordered in the morning. Visited at 3, 8, and 11 p.m.—No marked change.

Nov. 3rd.—Condition much as on yesterday; the most distressing vomiting, somewhat mitigated by the application of a dozen leeches a little above the wound; slight tenderness in this region having called for their adoption, and the pulse, by its character, not contra-indicating this local abstraction of blood; the same wretched excited look, and emaciated pinched features. In the after part of the day he seemed quieter, and had some sleep. The *cannabis indica* in conjunction with the opium was freely exhibited throughout the day, and evidently towards night had produced more composure. The calomel and opium was steadily administered, and also the opiate stupes and mercurial inunction over the abdomen. Stimulants—brandy in iced water, champagne iced, meat jellies cold. Visited five times, and apportioning means according to symptoms.

Nov. 4th.—Has had short sleeps through the night, occasionally waking with a scream from pain referred to deep in the wound; vomiting at short intervals; took, however, all his medicines; stimulants, &c., at regular periods; pulse 110, very soft and feeble. 3 p.m.—He has the same restless stare and wild look which he has



had since his admission, with frequent vomiting of small quantities of yellowish watery fluid. To this colour it has now changed from dark green, and even black, sometimes harassed with the most violent straining, without ejection of any fluid, and, as the creature describes it himself, as an effort to get rid of the "gnawing and tearing" in his throat the entire way down. When this sensation was fully upon him, I have seen him to grip the throat, and, as he expressed himself when the paroxysm was passed, "he could tear out the piece;" jactitation frequent and prolonged. I applied bladders of ice along the spine and over the wound, and the regions in its vicinity, with some apparent relief; urine passed in full quantity, and by the natural efforts; bowels moved freely by the small doses of the submuriate, dark fetid stools in large quantity. The foregoing was his condition from morning to night, during which time he was visited by me several times, and received unremitting attention and all observance from the pupils left in constant care of him. The fifth and sixth days were passed much in the same way, with the exception of the vomiting, which was not latterly so prolonged. The ice, too, after a time lost its effect, which was very marked after its first application, and on the seventh day the poor fellow lay comparatively exhausted; countenance visibly emaciated, and the same ghastly stare on it. Occasionally he makes the attempt to vomit, and suddenly rolling from side to side to get rid of the "feeling in his throat," constantly seizing on any one within his reach, and gripping him tightly down to him, supplicating assistance. Again turning partially over the side of the bed, with the head projecting over and downwards, then as suddenly flinging himself back, exhausted from his efforts. Thus he struggled on until ten minutes to three o'clock p.m., when he died just a week after the fatal bullet had stricken him. He raved for about ten minutes before death.

*Post mortem.*—Twenty-two hours after death, Nov. 8th, 1867, at half-past twelve o'clock p.m., before a crowded theatre of surgeons and students, assisted by Doctors Moore and Ledwich, I endeavoured at first to pass a bougie through the track of the wound, but the instrument was quickly arrested, owing to the contraction and subsequent narrowing of its course. Failing by gentle means to do so, I then slit up the abdominal wall through the linea alba from the ensiform cartilage to the pubis, and divided each lateral portion next by transmission from below the umbilicus backwards to the anterior edge of the quadratus lumborum muscle on either side. These



incisions were conducted with the greatest care, so as to guard against the slightest injury being inflicted on the parts beneath. On throwing back the flaps, formed after the manner described, the viscera were revealed, not puffed up, swollen or distended, but rather matted, or, as it were, agglutinated together by their own weight *en masse*. Evidently blood of a dark colour was extravasated largely and widely, not in fluid or coagulated masses, rather incorporated with all the tissues. This was the most striking peculiarity, and certainly a very unusual one, of the discolouration. Though the omentum was discoloured by this injection, and lay as it were in demonstration of its several layers and compartments, by the minute distribution and quantity of extravasated dark blood, yet these layers were not adherent to each other or the neighbouring surfaces, for the least effort lifted the omentum throughout its entire extent, and so likewise though the intestines were all livid, purple from the same cause, and steadily approximated to each other, yet they were not adherent. There was a dried condition of the opened surfaces of the small intestines, and though lying together as if *heavily*, not agglutinated by adhesive lymph. On lifting up the liver the under surface of its right lobe, close to its longitudinal fissure, was torn for about an inch in extent, not deeply, to about the eighth of an inch in depth by the passage of the ball; and from this it was reflected to the right kidney, which it broke up near its hilus, and then struck the right crus of the diaphragm, splitting it vertically (the stroke as if inflicted by a knife, so sharp and divided was the wound), and severing most important parts resting upon it. It was clearly demonstrated that the edge of the pancreas was cut, the right semilunar ganglion broken up in pieces, as well as several important nerves and vessels determined to this spot for communication and supply wounded; the bullet in its transit through the right crus of the diaphragm, cut the side of the inferior vena cava in its upward course, making an opening as if punched out, and in calibre about the size of a large goose quill, and from this great vessel flowed out so copiously the extravasated blood that coloured and permeated every tissue and recess that it could make by its steady flow and weight. The ball having passed through these vital parts, it entered, somewhat to the right of the median line, the body of the fourth lumbar vertebra, and passed backwards through its cancellated texture for an inch and a half, with a slight inclination to the right side, and made its partial exit in front of the right transverse process of this bone, where it lay. A probe passed

through the anterior opening, the slit in the right crus, detected the roughened bone beneath, and on being gently pressed passed into the aperture, detecting the bullet lodged deep beneath; the attachments of the poas magnus muscle on the right side being turned outwards, away with the greatest care and gentleness from its attachments with the bone and the corresponding one above and below, revealed the ball in its "*locale*." Where it stopped, a very small quantity of blood was thrown out around, and it appeared to me, from the ease with which the fibres of the muscle lifted up, as if they had receded from contact with the ball. The ball lay in its bed, and as it were ran its course till its force was expended; the apex of the cone of the bullet pointed backwards and to the right side, and was quite exposed to view, whilst its base rested concealed within the body of the bone, from which it had not passed. The bullet was of the minnie form, three quarters of an inch long, nearly half an inch in width, and in weight three drachms fourteen grains. The size of the ball in form accurately represented in the woodcut.



I removed the entire lumbar spine from the body, and have it in my collection, as well as the ball which inflicted the mischief. On careful examination of the bone it was quite clear that the spinal marrow or the canal in which it lay were not impinged upon, and indeed the perfect sensibility and power of motion which the man possessed in the lower extremities throughout the entire period of his life, lead to such an inference, which we perceive now confirmed by the *post mortem* examination as revealed.

I shall next detail the second case of severe gunshot wound which was admitted at the same time, on the same night, and inflicted by the same hand, and with the same murderous intent.

CASE II.—*Gunshot Wound above the Ensiform Cartilage, attended by Numerous Complications—Inflammation of the Chest and of the Peritoneum—Profuse Intestinal Hemorrhage—Cutting out of the Ball from the Chest—Recovery.*

Police Sergeant J. Kelly, aged thirty-three, was admitted to Mercer's Hospital on the 31st of October, 1867, with Constable

Kenna, at a quarter past one o'clock in the morning, after being shot on the same beat and in a few moments after. On his admission he was collapsed to the lowest degree; almost pulseless; tottering in his gait, even between the steady support of two powerful men who sustained him; his moans were subdued and altogether suppressed in a remarkable way. On his being questioned, his sufferings were not of that acute terrible description which harassed his fellow-sufferer, compelling him to scream out wildly, and even madly at times. On being stripped, and most carefully examining the body, no second wound could be discovered; and the point of entrance of the bullet was a small transverse slit, three-quarters of an inch above the extremity of the ensiform cartilage; the edges were not inverted, and were cut sharp; the wound was similar in every respect, save in position alone, to that inflicted on Kenna. It was situated also exactly in the mesial line of the body; from it, too, trickled a few drops of blood. There was no discolouration or any trace at all by which to mark the course of the ball; neither were there any peculiar symptoms by which to judge of certain injury to any particular vital organ. From the serious position of the wound, and the terrible collapse consequent upon its infliction, the magistrate considered it expedient, in this case too, taking his "dying declaration," which in words and matter almost exactly the same as that made by Constable Kenna, first shot. The same energetic means were put in force here as in the foregoing case: to restore the heart's action, and to uphold the sinking powers of life. Towards morning the pulse was steady in its beat, though exceedingly feeble, and even tremulous; the surface of the body was still cold and sweaty; and the same watchfulness, or rather seeming anxiousness in the eyes, a half-scared look. For several days his condition did not vary much from that of his injured companion; there was the same tendency to die by sinking and prostration; and there was the same energetic means, and constant applications of dry heat to the surface; the administration of stimulants and sedatives, &c., as often, and as persistently as symptoms would permit of; as in the former instance, so in this, the urine had to be drawn off, and so the bladder relieved. On the fourth day after his admission, and on the 4th October, I had the man removed to the next ward, bed and all, so he did not suffer the slightest shake or disturbance. I acted so, in order that he might not be a witness of the dying scene which just hung over his companion; he thus was saved, and escaped from the additional depressing agency of such a trial. The man was so little alive



himself, that he made no comment on the change of place, but lay calm and quiet, staring vacantly upon the ceiling. However, he was alive, and without any marked complications, though as depressed still, and sunken, as compatible with life.

5th November.—Up to this period the patient has been kept under the influence of small doses of calomel, and very large ones of opium; with the application of mercurial ointment over the abdomen and in the vicinity of the wound, with constant stupe cloths wrung out of hot water, with layers of French wadding, and oiled silk outside all; in this way early symptoms of inflammation and terrible pain in the vicinity of the wound and over the abdomen were averted. Evidently incipient inflammation of the peritoneum, and of the tissues in the track of the wound. Now the system was slightly touched, just ruffled by the mercury and the pain gone. Calomel was stopped, but the opium continued in grain doses of the powder every third hour, day and night, when awake. On the morning of the 6th of November, patient very restless; pulse throbbing, and flushed, particularly over cheeks and forehead; eyes very brilliant; and perpetual restlessness about the man. The cause was at once accounted for when I was shown pure arterial blood to about two and a half ounces, which flowed in a stream from the bowels; the sudden faintishness which came over the man, the nurse said, stopped it. This complication occurred only an hour before our morning visit, at 9 a.m. The explanation was taken, and so taken by me, that some large vessel, wounded at the time of accident, killed as it were, bruised or torn, never bled then, and so the depressed dying state of the man, favoured its being sealed up, not disturbed; and it was not till five days after, when some life was restored, when the heart began again to throw out its current a little more freely, and when the stream was a little stronger, that it overcame the blocked wound in the vessel, shoved out its retracted coats, and dilated its contracted fibres, and so liberated from the stricken deadened tissues of its tube, the artery allowed the blood to escape, pure oxygenated arterial blood. This bleeding, on the fifth day, of so profuse a nature, of purely arterial character, was certainly a most serious complication. When I had my patient only first alive, well then, I had to undo what I had been labouring for days to accomplish, when hoping was even against hope. I would here mark down and say how remarkably the complications of disease stamp their types, here in this sunken, prostrated, half alive creature, in a



few moments were lit up all the characteristics of the hemorrhagic tendency, the flushed face, the restlessness, the bounding pulse, through unfilled tubes; the throbbing main arteries of distant regions; and yet withal an occasional deep respiration, and often a succession of them, as it were, to give more capacity to the chest to constrain the return of that stimulus upon which its function seemed so dependant. Ordered a grain of opium, and three of acetate of lead every third hour; all drinks to be given cold; the brandy could not be dispensed with, and had to be continued in small doses, and in ice-water; ice to be constantly placed in the mouth to allay thirst; all warmth, stupes, &c., to be removed from surface of abdomen. 4 p.m.—Two considerable evacuations of pure arterial blood since early visit; heart still bounding, and pulse throbbing; ordered fifteen drops of tincture of digitalis every half hour, watching the pulse; to continue the acetate of lead and opium; no change of posture since the patient's admission. 9 p.m.—The patient has been very restless, with great heat of body; two large evacuations, nearly three ounces each of pure arterial blood. Now applied bladders filled with ice along the spine, from the middle of the dorsal region to the end of the sacrum; and, likewise, bladders filled with ice, were placed over the entire abdomen; continued the digitalis as before; and also the lead and opium pills; sips of cold chicken broth and chicken jelly given occasionally. Visited again at 1 a.m.; only one small arterial evacuation, about half an ounce since last visit, four hours past. Renewed the ice to the spine and abdomen; all other means to be continued; the digitalis in only ten drop doses; the heart being now quiet, and the heat of the body greatly diminished; the throbbing of all the larger vessels in the neck, temples, and arms, subdued.

Nov. 7, 9 a.m.—Had some sleep, and only one evacuation of blood, about an ounce; it was darker in colour, and a considerable amount of serous fluid making this quantity. The whole temperature of the body greatly reduced from the unremitting application of the bladders filled with ice; still to be continued, precautions being taken to interpose some linen between the bladders and the parts to prevent vesication, or, as might be, sloughing; stopped the exhibition of digitalis; altered the acetate of lead to two grains and a grain of opium every fourth hour; brandy with iced water; all nutritive drinks and jellies iced. Pulse is now calm, but very feeble, yet I dared not hurry the circulation or exalt the temperature, which will account for the line of treatment just laid down. The

wound has altered in its character; instead of being the mere slit which I described its character to be at first, its edges now have all changed both their shape and colour; the entire has assumed a circular form; the thin, sharp edges are dead and around for fully half an inch from the margins, while a wide, dusky-red circular patch, for nearly an inch beyond, bounds the circumference of this deadened portion. The changes in the vicinity of the wound were carefully watched from day to day, and gradually this remarkable alteration of appearance was brought about. The most gentle touch and well directed, throughout all this region and in its vicinity, could not detect any trace whatever of the foreign body that entered there; but gentle pressure below the wound and somewhat to the right side, could lift up as it were a few drops of pus from some deeper source beneath, evidently from the lacerated track through which the ball travelled. With this wound, from the very first, there was no meddlesome surgery, nor poking into it; it was subjected just as I have said to the gentlest touch, to try and discover whether any foreign body could be detected in its vicinity. In the treatment of it there was no traction excited upon its edges to solicit their union; the wound was left open, so that any matter secreted might well up from it and be expelled by the slightest cough or pressure, and this aid would insure its escape, and so prevent pouching. A soft, light linseed meal poultice was applied to the part morning and evening, so as to relax tissues. The man never complained of pain in the wound. 4 o'clock p.m.—But one very small arterial motion; dark fluid, with only a trace of bright blood through it; chest quite clear on percussion; to continue everything as ordered in the morning. 9 p.m.—No motion from the bowels since last visit; pulse quiet; all throbbing of the large vessels absent for some time; urine passed in full quantity; omitted the ice to the spine; continued it still over the abdomen; omit lead and opium pills, and ordered a grain of powdered opium every third hour; drinks and nutriment iced as before. 12 p.m.—Sleeping quietly; bowels undisturbed; pulse steady, but very feeble; no change in treatment.

Nov. 8th, 9 a.m.—Had a quiet night; two motions from the bowels—still arterial weeping, about half an ounce in each—a good deal of dark fluid besides; no pain, but patient lies perfectly restless; staring at the ceiling, and scarcely can be induced to take the trouble of speaking; ice applied in bladders again along the spine and over abdomen; to continue the opium, nutriment, &c. 4 p.m.—

Bowels quiet; has taken nutriment well; pulse steady and weak. 9 p.m.—No motion from bowels; remove ice from spine; to continue all other treatment.

Nov. 9th.—All bleeding stopped; one dark motion; pulse steady, but very feeble; wound presents no danger except the separation day after day of the sloughing edges; discharge in small quantity; quite healthy pus; it generally fills the aperture to the surface; does not run over, and even pressure on its circumference does not increase the flow more than a couple of drops, and that only when made in the direction I alluded to before. Ice still applied over the abdomen, and opium continued; diet also all cold. Visited 4 p.m., and at 10 p.m.—No change in symptoms or treatment.

Nov. 10th.—Slept at intervals quietly; pulse steady, feeble, 110; no bleeding or evacuation from the bowels; urine in fair quantity, rather high coloured; the light, warm poultices still over wound; discontinue the ice as applied over abdomen; all treatment still cold; opium in grain doses to be continued every fourth hour. To-day, for the first time, there appeared a slight purplish discolouration over the lower part of the right side of the chest, just above the liver towards its thick end; no tenderness on pressure or pain on deep respiration; no hardness or tension throughout the entire of this inferior thoracic region, but slight dulness on percussion; respiratory murmur I might say natural. Visited at 4 p.m. and 11 p.m.; no change.

Nov. 11th.—Had rather a restless night; complained of pain around the wound on the effort being made to fill the chest with air. The discolouration posteriorly as alluded to on yesterday, and present for the first time, greatly diminished; ordered twelve leeches to be applied around the wound along the track of the pain, which ran somewhat in the course of the costal attachments of the diaphragm on the right side. After bleeding freely, warm stupes to be put on for some time; a linseed meal poultice over leech bites, wound, and all the painful parts; a grain of powdered opium to be given every second hour; diet as before, limiting the brandy to two ounces, barely sufficient to stimulate the heart. 4 p.m.—Pain relieved, the leeches having bled very freely, but not entirely gone; stupes and poultice to be continued. 9 p.m.—Pain entirely gone, even on deep inspiration; poultice to be continued, and layers of fresh wadding and oiled silk over all; bowels quiet, all hemorrhage having been checked for the last two days; to continue the opium every second hour. Though such large quantities of opium have



been taken, the pupils are not contracted, nor has the man been in the least narcotized.

Nov. 12th.—Little change since yesterday, except that the discolouration of the side has all been dispersed. Pulse still very weak, 112, and all the augmented action of the circulation has long since been subdued. Bowels moved; no blood, but the evacuations very dark coloured; urine in fair quantity; no alteration in the wound; to continue local and constitutional treatment as ordered on yesterday morning. 4 p.m.—Again pain of a very acute character; embarrassing respiration, and fixed about from three to four inches behind the wound, and on the right side. At once ordered twelve leeches, stupes and poultice; the grain of opium every second hour; hot jars to the feet; pulse still rapid, yet small and feeble. 9 p.m.—Pain, though subdued, yet still very embarrassing; applied over the right lower thoracic region, and the upper part of the right hypochondriac, a large blister, with a hole cut in its centre, corresponding to the position of the leech bites recently inflicted. Over the entire surface, &c., hot stupes, and to be replaced by a thin linseed meal poultice for the night; opium steadily.

Nov. 13th, 9 a.m.—Pain checked altogether, and the man had a fair quantity of sleep; detected now for the first time some little fulness between the eighth and ninth ribs on right side, and posteriorly behind their great curves moderate tension of the corresponding intercostal muscles, and to very delicate touch some slight deep œdema. This region was likewise more dull on percussion, and now vesicular respiration in the lung on the right side was heard very feebly and very deep within. This important change, as I discovered, was borne testimony to by the most careful examination of our distinguished physician of the hospital, Dr. Moore. Now my watchfulness for several days was directed towards this locality as the most probable lurking place of the bullet. The pain referred in this direction, though not exactly to the spot, on more than two occasions; the discolouration which appeared, and so rapidly again passed away; the injury inflicted on the man's clothes where torn by the bullet and the crushing of the button, even in a particular direction, all, it must be admitted, very separate links, yet when connected, leading towards a particular inference, that taken by me, as to this being the site in which the ball would be found. Treatment as on yesterday. 4 p.m.—Pain relieved entirely; bowels quiet. Carefully I examined again for the ball. Kneeling beside the patient's bed, I passed my left hand very gently over



the suspected part of the chest, and then with the index finger of my right hand carried gently from before backwards along the eighth and ninth intercostal spaces, and corresponding to that part already marked out by auscultation and percussion, as somewhat dull, by the lightest palpation with the finger, between the eighth and ninth ribs, just behind their great curve, I thought I could discover within the chest a solid body; twice I got the slight shock to my finger, so as to make me certain that a foreign body was within, small, weighty, and movable. After these very gentle efforts the foreign body eluded me altogether, and the best directed touch could not discover its presence. 9 p.m.—Free from pain; pulse 115; patient a little flushed; wound suppurating healthily; all sloughed part cast off; chest and abdomen covered with stupes and French wadding, and oiled silk as before; opium continued; all nutriment now given tepid and even warm.

14th November.—Still flushed; pulse, 112; bowels freed; no return of blood; wound healthy; no pain in its vicinity; again examined carefully the affected side; no discolouration or increased œdema; no extension of dulness or want of respiratory murmur—as by an application of the same delicate tact as pursued on last evening, I again discovered the same weighty tap from within, on gentle palpation over the suspected spot. This sensation was likewise appreciated by my able colleagues, Doctors Moore and Ledwich, yet quietly again the ball hid itself and could be no more felt. I rolled the patient the least degree from off of his back over towards the sound side, not more than three inches, when the foreign body eluded all further detection; neither was it to be discovered on the patient being brought back again to his former position. To continue opium; stimulants; nutriment 4 p.m.—I could not discover the foreign body, in the most careful and gentle examination. 9 p.m.—Having again made search for the foreign body, I discovered it as distinctly as on the second time; no doubt within the chest, and with some range of motion permitted to it—most likely chambered off from the general pleural cavity.

November 15th.—The man had a restless night; pulse 116; skin hot; face flushed; and refused his food. I again examined carefully the chest, but could obtain no information as to the presence of the foreign body as satisfactory as before; continue treatment. 4 p.m.—At this visit I again felt the weighty little body, by the same gentle palpation, very deep, and with the gentlest touch I

could satisfy myself of its form. I pronounced it, without doubt, to be the bullet. The man made a slight change in his position, and again it was gone, and hid itself, so that it could not be found out; however, I was satisfied that the bullet was there, and determined if I again got the same evidence, though involving so weighty a question, at once to cut down upon it and accomplish its extraction. However, this opportunity was not permitted to me, either at this time or when I again visited my patient, at 9 p.m.; and I may state, at this last hour I could not satisfy myself even of its being there.

November 16th.—On this day, the sixteenth after the accident, I extracted the ball from Kelly's chest, at twelve o'clock. For the past three days I was cognizant of some solid material floating about, easily disturbed from its position, and situated far back on the right side of the chest, corresponding to the region behind the greatest curve of the ribs, and between the eighth and ninth ribs; on palpation, it was to me evident; there was some little fulness in front of this, corresponding to the blood discoloured mark before alluded to, as being present on the right side; I determined now to cut down on this point, where I supposed the bullet lay, and returned to the ward to do so at half-past 9 a.m. The patient could not be stirred from the bed without a fatal risk; we therefore drew down the bed from the wall and turned it, with the affected side of the patient towards the window. The patient was then gently turned for nearly half a turn towards his left side; but it was now difficult to be certain of the presence of the ball; therefore, for the time, further proceeding was abandoned. I was compelled to desist, from the sinking state of the man, from terror in his enfeebled state at the prospect of an operation; a full dose of brandy was given to him in hot water, and the patient was allowed to remain in his bed, placed in the same position, opposite the window, as I intended to return after a little while when his fright passed away, and his pulse got up. At 12 o'clock I again met my colleagues, as I was not satisfied in allowing the ball to remain lodged any longer; I gently now turned the patient over less than half a turn, and had him sustained so by assistants; having now distinctly felt the ball, I cut down upon it, in a line corresponding to the course of the ribs, and midway between the eighth and ninth, somewhat nearer to the upper edge of the eighth, the incision was about three inches and a-half deep through the integuments and external layers of intercostal muscles; in the second

cut, deeper through the internal layer, and adventitious material, fully a table spoonful of purulent matter escaped, and some coagulated blood with it; I then pressed steadily upon the part, and the bullet presented its convex end and was readily drawn out; but little matter followed its extraction; I put my finger into the wound and gently searched around; a very considerable cavity, quite smooth on the surface next the lung, but somewhat uneven externally or towards the ribs; the full length of the index finger could range this cavity; I am certain it did not communicate with the right pleural cavity, or it may have been a part of it walled off by adhesions to the visceral layer; this I believe was what really took place, or in other words, the pathological change assisting the ball in its escape from detection during several examinations, yet always retaining it within certain bounds, so that it could again be found. I have mentioned having searched carefully this cavity, my chief object being to ascertain if any foreign bodies, a piece of cloth, the missing top of the button, or some other portion of the man's dress, had been carried in before the bullet in its rapid course; such happily was not the case; there was no bleeding from the wound; I placed a few shreds of lint steeped in oil within the track of the wound, so as to allow any fluid secreted within readily and at once to escape; a small lint compress was placed on either side of the wound, and the parts supported with a few wide straps of adhesive plaster, so as to prevent undue motion of the ribs and wounded parts; the man was much elated on the extraction of the ball; yet, to prevent syncope, brandy had to be freely given. The ball was somewhat flattened in its cone where it struck the button, it also had stamped on it the first two letters of the word police, which was on the button, and also some of the internal copper layer of the button impacted brightly on its surface; in a deep groove on one side of the ball lay compressed tightly a small piece of the cloth of the man's coat. The ball was similar in size, weight, and form to that which I extracted from the body of Constable Kenna, shot



by the same man, and with the same pistol. (By looking at the woodcut, its size and form may be observed—most accurately and



beautifully represented by Mr. Oldham.) 3 p.m.—He has been doing well since the operation, and is now in a tranquil sleep.

Nov. 17th, 9 a.m.—Slept well, in fact continuously; pulse 120; bowels moved once; motions still dark, but more solid; no pain in the wound, which I made on yesterday, no tenderness about it; the man still lies quietly on his back; did not disturb the dressings; the wound of entrance suppurating and granulating healthy; some intercostal pain towards the left side, a little above the heart; chest clear on percussion throughout; feet a little œdematous, owing, I think, to the drooping position in which the limbs lay; ordered stupes wrung out of boiling water, sprinkled with laudanum, over the abdomen and over entire walls of the chest, and a mustard poultice over the pained part above the heart; omit opium now in the day, one full grain of the powder at bed-time; ordered two grains of quinine and ten drops of aromatic sulphuric acid in a little water, every fourth hour; an egg beaten up with brandy and milk, and an ounce of brandy every second hour; beef-tea and chicken-broth. Drew the man up in the bed more, and supported him so with pillows, so as to prevent congestion of the lungs; the legs were slightly elevated too, so as to lessen œdema. Visited at 3 p.m., 8 p.m., and 12 p.m.; not necessary at any of these periods to alter treatment.

Nov. 18th.—Slept quietly; pulse down to 105, soft and feeble as might be expected. The falling of the pulse, fifteen beats in twenty-four hours, was very good, showing, in a decided manner the relief from irritation, the foreign body, the bullet being removed; bowels opened twice, too freely, so ordered a chalk-draught with kino, extract of catechu and opium; beef-tea stopped; arrow-root and port wine every third hour; and eggs beaten up with brandy and milk as nutriment. Changed the patient into a fresh bed, and placed with the trunk somewhat elevated to guard against congestion and traumatic pneumonia. 3 p.m.—Bowels moved again since early visit; repeated the astringent draught; ordered port wine mulled with spice, and port wine and arrow-root. 8 p.m.—quiet. 11 p.m.—Bowels quiet; pulse at same range as in the morning; to continue.

Nov. 19th.—This day there is a marked improvement in every way; pain in chest gone; gone on deep inspiration, except at a small point in the vicinity of the anterior wound; pulse down to 90, that is twenty-five beats in the minute, in 48 hours, since the operation; his countenance is brighter and not congested; and his breathing is



altogether easier; bowels quiet since last evening. The wound which I inflicted for the extraction of the ball, though just four inches long, is healed, very nearly by first intention, very little imperfect pus escaping. There is no pain over the region on pressure, and though dull on percussion, yet respiration is quite audible at some depth from the surface; readjusted pads and adhesive straps as before; the anterior wound that was inflicted by the bullet, is contracting, granulating freely and healthily, and, as a consequence, healthy pus secreted from it, but in very moderate quantity, never welling over; œdema of feet all gone, owing, I think, to the changed position of the man; wine in full quantity; beef-tea and chicken-broth, and a little bread crumbled in it, now for the first time since the accident; brandy and eggs. The patient is now well propped up, kept nearly in the sitting position, so as to guard from hypostatic congestion. 3 o'clock.—Has had some very refreshing sleep, and feels stronger and more cheerful. 11 o'clock.—Has taken all his food, steadily, and is now to have his grain of opium in pill.

Nov. 20th.—Slept well; pulse 90, soft; bowels moved twice, so discontinued the beef-tea, &c., and ordered rice boiled, well broken, and rice milk; arrow-root with port wine; an ounce of brandy every second hour, and each alternating quantity with a beaten up egg; slight pain complained of a little to the right of the bullet wound; the lips of the one made for the extraction of the ball glued together, so broke up the adhesion with a probe, and allowed some matter and a little blood to escape, assisted by gentle pressure; applied a soft linseed meal poultice over the entire right side, and opiate stupes over the left and abdomen; bullet wound healthy. 3 p.m., Much improved since morning; congestion, from position, considerably diminished; some uneasiness in right side of chest, but pain relieved on deep inspiration; bowels quiet since morning. 8 o'clock, and 11 p.m.—No pain; to continue treatment.

Nov. 21st.—Slept well; bowels moved once, and for the first time of a proper natural feculent colour, giving evidence that the liver is performing its functions again; œdema of limbs nearly gone; tongue moist; pulse 90, soft; slight pain on deep inspiration, between the bullet wound and the one made for its extraction, the former looks healthy, rapidly filling up and sufficiently moistened with healthy pus; the inflicted wound for extraction, discharging a little laudable matter. Expectoration of matter from bronchial membrane much less, and the congestion of the lungs considerably diminished, and even remarkably so in the right lung. Again enveloped the entire

right side with a linseed meal poultice, a little oiled lint being placed within the lips of the wound; the anterior one dressed as before, with simple ointment; the opium stupes over the entire belly; diet as on yesterday; rice, rice-milk; arrow-root and port wine; brandy and eggs freely; one grain of opium at night; kept well drawn up and sustained so in the bed. 3 p.m.—Feels very comfortable; no pain. Visited at 8 and 11 p.m. To continue every thing.

Nov. 22nd.—Had a good night, slept uninterruptedly; no pain on inspiration, even when forced or made deep; tongue clean; bowels moved once, healthily; pulse 90, soft; œdema of feet gone; wounds suppurating; reapplied the poultice over the entire side; expectoration much diminished, and, in character, more clear and mucous than the discoloured pneumonic characters that prevailed up to this time; rice and rice-milk; brandy and eggs as before; one grain of opium at night. Visited at 3 p.m., 8 p.m., and 11 p.m. Still steadily mending.

Nov. 23rd.—Slept a shade better in every respect; voice scarcely audible, still so weak; bowels once, and solidly moved, and of natural colour; to continue brandy in same quantity; one grain opium at bed-time.

Nov. 24th.—Improving steadily; sleeps; eats, &c.; stopped some of his brandy on yesterday and to-day; he is now taking eight ounces and six ounces of wine.

30th Nov.—Has continued improving up to this morning since last report; wound in side healed, and no tenderness in the line of incision or around it; but the dulness still continues for an area of at least two inches in its circumference; the bullet wound is filled up, nearly cicatrized; but this morning the patient referred pain of a sharp character on deep inspiration or on coughing, to a point about two inches below, and one to the right of the wound. I at once had applied eight leeches with relief, blood being taken afterwards by warm stupes, and the part then covered with a linseed meal poultice. Towards evening the pain had abated, but not altogether gone; the stupes repeated, and a poultice to cover the part for the night.

Dec. 1st.—Slept quietly; pain gone from the position complained of on yesterday, but now referred to a point about two inches (accurately an inch and three-quarters) below that where it centered on yesterday; ordered six leeches over the part, the stupes as before followed by the linseed meal poultice; bowels opened healthily;

pulse quiet. 9 p.m.—Pain somewhat relieved; ordered two grains of opium; poultice and stupes to be continued.

Dec. 2nd.—Slept well; can now draw in a full breath without suffering any pain; both wounds healed up; to continue poultices and stupes, and two grains of opium at night.

Dec. 8th.—All annoyances gone; all wounds healed.

Dec. 10th.—Allowed to sit up; dressed.

Dec. 12th.—Quite convalescent; walks a little about the ward, assisted by a comrade.

Dec. 16th.—Can now walk about without any assistance, and regaining health and strength rapidly; and the poor fellow was dismissed cured on Monday, the 23rd of December, to Christmas at his own home. I have frequently seen Kelly since he left the hospital, and he seems now getting strong and lusty, and in excellent spirits. The woodcuts on the frontispiece adorning these pages, and executed by Mr. Oldham, from beautiful photographs by Robinson, taken a few days since, give two views of the patient; the one exhibiting the cicatrized wound in front, the point of entrance of the ball; the other, the site of the cicatrized wound, the lineal incision made by me for its extraction.

In the surgical report just closed I have dwelt briefly on every practical question, and therefore, in conclusion, I shall only make the few following observations. From a review of every circumstance in connexion with these cases I think it will be admitted that two more formidable examples of gunshot wounds could not have fallen under the observation of the surgeon. Now, from a close analyzing of the symptoms of the injuries inflicted in each, of the momentous consequences resulting from the operative procedure called for, no want of vigilance, or deviation of surgery from a healthy standard, could be permitted. The same laws should ever regulate the military practitioners as the civil surgeon—the wise and considerate appreciation of facts, the judicious interference of operative art. Every civil hospital surgeon understands the regulating laws of projectiles, and to what extent they may assist him in arriving at correct views in any given case, and the sharp quickened intellect of the civil hospital surgeon, can, as rapidly as any other, detect the slightest deviations or changes requiring a departure from ordinary rules. Any of the complications likely to arise, or that may ensue after gunshot injury, are those well known and quickly recognized by the civil surgeon in



his ordinary practice, in cases where violence has been impressed on the living frame; and any operative measures that may be required after gunshot injury, are as sedulously anticipated, and can as effectively be executed by him as those every day occurring, the result of ordinary violence. Every educated surgeon is aware of the relentless violence inflicted upon every tissue of the body, hard and soft, by the rifled barrels, breech-loaders, and conical balls adopted in the instruments of warfare of the present day, and yet the same great practical lessons laid down by Hunter, by Guthrie, by Hennen, by Thompson, will remain for ever as storehouses of knowledge, from which all moderns may draw abundantly. As for Hunter's writings they stand the very impersonation of truth. Hunter's great work on the blood, inflammation, and gunshot wounds, published in 1794, will for ever stand as a monument of his ability, his originality, and his profound thought. Time and inquiry only bring out the beauty of his conceptions, the unyielding accuracy of his opinion; and in all his writings so genius has marked him, while some of his aphorisms remain still beyond our grasp—like the bow of Ulysses, that none but its master could bend.

ART. X.—*Contributions to Operative Surgery.* By HENRY GRAY CROLY, Fellow and Licentiate of the Royal College of Surgeons in Ireland; Licentiate of the King and Queen's College of Physicians; Surgeon to the City of Dublin Hospital; Lecturer on Clinical Surgery; Senior Demonstrator of Anatomy in the School of Surgery of the Royal College of Surgeons; &c., &c.

- I. EXCISION OF THE ENTIRE LEFT SUPERIOR MAXILLA, BY A SINGLE INCISION, FOR MYELOID TUMOUR.
- II. EXCISION OF HALF OF INFERIOR MAXILLA, FROM THE ARTICULATION, FOR EPULIS.
- III. REMOVAL OF A LARGE PORTION OF THE LOWER JAW FOR NECROSIS.

OPERATIONS for the removal of the upper and lower jaw must be considered very remarkable achievements of modern surgery.

The diseases requiring such bold procedure cause much deformity and personal discomfort to the patient, and, by implicating vital



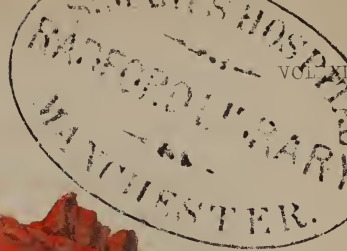


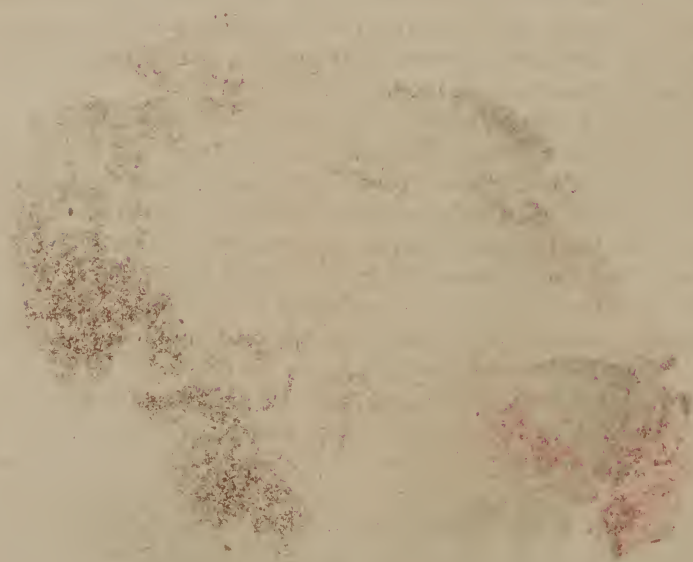
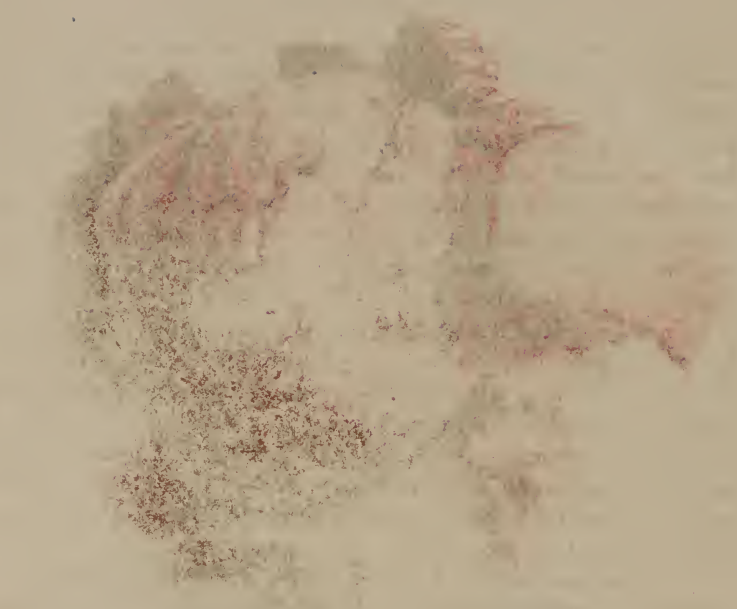
Fig. 1.



Fig. 2.



MR CROLY ON EXCISION OF UPPER JAW



structures, may terminate in sufferings rendering existence itself miserable, if not timely relieved by the skill and dexterity of the surgeon. For example, tumours of the antrum are liable to project on the cheek, producing hideous deformity, and to extend into the mouth and fauces, thereby impeding mastication and articulation. Loss of hearing and vision are also complications which may occur, and the morbid growth, by extending upwards, may press upon the brain through the extremely thin osseous plate forming the roof of the orbit.

I do not consider it necessary in this paper, which is intended to be entirely practical, to enter into a description of the various forms of disease involving either the upper or lower maxilla, and requiring partial or complete excision, or to enumerate the various opinions of the distinguished surgeons who proposed and planned the several methods of operating in such serious cases. Each, in my opinion, ought to stand on its own merits, as presented to the surgeon, who will decide and act accordingly.

The first case which I relate was a well-marked example of "myeloid" tumour, involving not only the cavity of the antrum, but the periosteum of the entire upper jaw, in a patient thirty-six years of age. The disease commenced when he was in his sixteenth year, and, as will be observed from the picture taken before operation, caused great deformity by displacing the eye upwards, protruding the cheek, obstructing the nostril, causing epiphora, and pushing the nose towards the opposite side.

The second case of operation now reported was excision of the right half of the lower maxilla, from the articulation, for a large "Epulis," in a man fifty-six years of age, and so far as the operation itself was concerned, was entirely successful, the wound having healed, and the patient having so far recovered that he was able to be out of bed and go about the ward of the hospital: an attack of bronchitis supervening on an operation of such magnitude, complicated, as it was, by erysipelas and glossitis, produced so much exhaustion that it ended fatally.

The third case detailed was an example of necrosis of the lower jaw, produced by the incautious and excessive administration of mercury in a man twenty-seven years of age. The operation was urgently demanded by the almost exhausted condition of the patient, caused by profuse purulent discharge, from numerous sinuses, during a period of two years. The efforts of nature, aided by various remedies and surgical assistance, failed to detach

the sequestrum. The young man, according to his own statement, "was almost at death's door" prior to coming under my care, and is now in the enjoyment of robust health.

*CASE I.—Excision of the entire left Superior Maxilla for Myeloid Tumour by a single incision—Recovery with scarcely a trace of deformity.*

James K—, a farmer residing in the county of Cork, thirty-six years of age, was admitted into the City of Dublin Hospital on the 23rd of May, 1867, under my care, suffering from a tumour of the left upper jaw.

*History.*—The patient, who is a very intelligent man, states he got a kick from a horse twenty years ago in the upper jaw. There was not any wound inflicted by the blow, but he suffered intense pain. In a short time he noticed a swelling at the injured part, which increased in size gradually. Six months ago, whilst employed lifting some heavy timber, a plank fell on him and struck his face in the exact part where he received the kick from the horse in the first instance. The tumour became painful from that time, and he experienced a sensation compared to the darting of needles. Latterly the growth has distorted his face, and by pressing into the left nostril obstructed his breathing, and caused the tears to overflow. He consulted his medical attendant last month, who explored the tumour with a trocar; nothing escaped but a little blood.

*Condition of Patient and Tumour on admission into Hospital.*—Healthy-looking young man, dark complexion, and possessing a considerable amount of intelligence. His left eye is higher than the right, and protrudes to a slight extent from the orbit. A large tumour occupies the anterior surface of the left superior maxilla, of bony hardness; it has pushed upwards the orbital plate of the superior maxilla, and bulges into the left nostril, forming a convex swelling into that cavity. The nose is pushed towards the right side. On raising the upper lip the tumour is perceptible, and has a semi-fluctuating feel. Three teeth, commencing from the central incisor, are loose. There is a slight bulging of the palate plate of superior maxilla, and the patient winces when pressure with the finger is made on the roof of the mouth at the affected side.

His sight and hearing are perfect. I explored the tumour a few



days after his admission into hospital in the following manner:—The upper lip being held up I plunged a medium-sized trocar into the antrum; it entered the cavity, but met with resistance in the interior. The exploration left no doubt upon my mind that there was a solid mass occupying the antrum. Nothing but a little blood escaped, which was examined microscopically, and presented no abnormal appearance.

I explained to the patient my views of his case, and that nothing but removal of the entire upper jaw would free him from the disease, which seems to have grown more rapidly within the past six months, according to his own history, than for nineteen and a half years previously. He said he would leave himself entirely in my hands, feeling assured that I would do what was right for him. I communicated my opinion of his case to the surgeon, who sent him to me, with which he fully concurred. I consulted with my surgical colleagues, and it was unanimously decided that the removal of the superior maxilla should be performed.

The operation was performed on Monday, June 3, 1867, assisted by my colleagues, and in the presence of a number of hospital surgeons, and a large class of students.

The operation-table was so constructed that I could raise or depress the patient's head and shoulders at a moment's notice (which is of great importance in such an operation), and I arranged my instruments on three trays, so that at each stage of the operation I had no difficulty of having at hand the required instrument. The patient had no breakfast, but took some brandy and egg mixture, and to avoid the pain of the preliminary incision, I had him put under the influence of the tetra-chloride of carbon, which produced a rapid but temporary anesthetic effect.

I commenced the operation by making an incision from beneath and to the external side of the inner canthus, down by the side of the nose, and then under the nostril, and through the filtrum: making due allowance for the stretched integuments, I kept farther out towards the face than might at first sight appear necessary; by such line of incision, deformity was subsequently prevented.

The left incisor tooth having been extracted, I detached the mucous membrane and periosteum from the inside, at the junction of the palate with the alveolar process, and then made an incision along the median line of the palate, and another transversely,

corresponding to the anterior part of the velum palati. With a raspatorium I pushed back the mucous membrane and periosteum, but finding the tumour projecting, I at once abandoned the idea of saving the roof of the mouth. The lip and cheek, with ala of nose, were rapidly dissected, and held up by an assistant, thus exposing the anterior surface of the jaw and tumour. I then proceeded to divide, with a small saw, the nasal process of the superior maxilla, and, this having been accomplished, I partly divided the malomaxillary articulation with the same saw, and with a cutting pliers completed the section of the bone. A large powerful straight forceps was next used, one blade was passed into the mouth, the other into the nostril, and the palate process of superior maxilla and palate bone were divided.

The eye was carefully held up with a curved spatula, and the origin of the inferior oblique muscle divided, together with the infra-orbital nerve. The entire tumour was then grasped in the "lion forceps," and by a downward and steady traction, with rotatory movement, the superior maxilla, with diseased mass, was extirpated.

The patient bore the operation remarkably well, and lost very little blood. His head was lowered for a few moments by the arrangement of the table, as already described, and he drank some brandy and water. The enormous gap left by the removal of so large a mass was carefully sponged out, and one large branch of the internal maxillary artery, which spouted at the bottom of the wound, was secured in the artery-forceps and ligatured. The "styptic colloid" was applied, with a bit of lint, to the raw surface, and at once checked the oozing from small vessels. Dr. Bennett, who kindly brought the electric cautery, applied it to one deep point; the hemorrhage was easily controlled. The cavity was filled with pledgets of lint, each having a long string attached, to facilitate removal, the ends of the ligatures being drawn out at the angle of the mouth. The edges of the incision were brought into perfect apposition with fine iron wire interrupted sutures.

The operation having been completed, the patient was carried with the "poles and sheet" into the spacious ward, which opens out of the operation theatre, and was placed in bed.

He took some brandy and iced water and also strong beef tea.

Three o'clock, p.m.—On visiting the hospital I found the patient asleep.



Fig. 1



Fig. 2.



MR CROLY ON EXCISION OF UPPER JAW.



Eleven o'clock, p.m.—Pulse 80; patient very quiet; slept soundly since operation.

Iced water applied, with single layer of lint, to the wound.

June 4.—Pulse 64. No pain complained of; bowels not freed since operation. Ordered purgative enema; plugs of lint were removed, as there was some fetor from them.

June 6.—Pulse 60; patient passed a good night; bowels acted; wound looks healthy; no tension; nourishment continued.

Ten o'clock, p.m.—Pulse 80; wound looks healthy; mouth syringed with solution of permanganate of potash (Condy's fluid) in water. Slight redness on the nose.

June 7.—Pulse 72; patient passed a very restless night; was thirsty; erysipelatos blush over bridge of nose. Ordered cathartic bolus, turpentine enema administered with O'Beirne's tube; muriated tincture of iron in whiskey and water every third hour; warm water dressings carefully applied over the nose and line of incision. Wine and beef tea continued.

The greater part of the wound has united by the "first intention."

Eleven o'clock, p.m.—Pulse 80; skin hot; patient slept nearly all day; feels much better; erysipelas has extended towards his left eye. Nourishment and syringing of the mouth continued.

June 8.—Pulse 72, soft and regular; patient had a good night; erysipelatos blush has not extended; warm water dressing to the wound. 10 o'clock, p.m.—Pulse 72; skin cooler; erysipelas has extended to right cheek, and disappeared from the left side.

June 9.—Pulse 80; no extension of erysipelas; good night.

June 12.—Erysipelas gone; cuticle peeling off.

From this date the patient made an uninterrupted recovery.

The erysipelas in this case was not preceded by rigor or any constitutional disturbance of consequence, and the redness in the first instance appeared on the bridge of the nose and not at the line of incision.

Her Tomsohn, from the establishment of Forster & Co., took a sketch of this patient before the operation, exhibiting the great deformity (see Plate II., Fig. 1), and another drawing subsequently, showing his appearance after recovery (see Plate II., Fig. 2).

The coloured plate shows the upper jaw and tumour (see Plate I., Figs. 1 and 2).

My friend Mr. Baker, F.R.C.S.I., saw the patient about six weeks after the operation, and so trifling was the deformity that

he asked me whether I had removed the right or left side. He has since favoured me with the following note:—

“4, Clare-street, Merrion-square,

“Monday, March 16, 1868.

“MY DEAR CROLY,—I perfectly recollect the case of the man Keily, whose upper maxilla you removed last summer. I saw him with you a short time after the operation. There was little or no deformity; so trifling was it that at a little distance it was not easy to say which side had been operated on.

“I remain,

“Very faithfully yours,

“J. A. BAKER.”

The subjoined letter from Mr. Plummer, who saw the patient in many months after operation, explains its complete success:—

“Dublin, March 17, 1868.

“DEAR SIR,—I saw your patient Keily when I was at home for Christmas; he was working in a field, and in robust health. Having been present when you removed his upper jaw I consider it really wonderful the trifling amount of deformity which exists after the removal of so enormous a mass; in fact, you would not know, without very close inspection, that anything had ever been done. He speaks distinctly. I understood every word he said; and when I asked him if he wore an artificial palate, he said he had it locked up in a press, and he then brought me into the house and showed me the false palate. I consider the operation one you may be justly proud of.

“Yours sincerely,

“WALTER G. PLUMMER,

“Surgical Student.”

I consider it of practical use to append to the recital of the foregoing case a list of the several surgical instruments and appliances which are required, and should be at hand, when the surgeon is proceeding to excise the upper jaw, viz.:—Table of convenient height, with reclining head-piece or strong arm chair, with a board to secure the thighs; scalpels, artery forceps, tenaculums, dissecting forceps, tooth forceps, mallet and chisel, gouges, small saws (Hey's and Fergusson's), “lion” forceps, long bone forceps, actual cauteries, or Bruce's gas ditto, ligatures,



Fig. 1.



Fig. 2.



MR CROLY ON EXCISION OF LOWER JAW.



copper spatulas, oil of turpentine, or "styptic colloid," numerous pledgets of lint with strings attached, lint to support the cheek, chain saws, metallic wire for sutures, surgical needles, sponges, brandy, carbonate of ammonia, pieces of ice and iced water, suitable drinking cup, &c., &c.

CASE II.—*Excision of right half of Inferior Maxilla for large Epulis.*

Hugh S—, a countryman, aged fifty-seven years, was admitted into the City of Dublin Hospital on the 3rd of November, 1866, suffering from a large Epulis, involving the right side of the lower jaw and sub-maxillary gland. He gave the following history of the disease from its commencement:—

Nine months ago he noticed a little sore like a blister inside his lower jaw corresponding to the first molar tooth. He fancied it was caused by a decayed tooth, and had one extracted by his medical attendant, who kindly referred him to me. Subsequently a second tooth was drawn. In a short time a small tumour appeared where the blister was, and when smoking his pipe a little blood came, which he thought was "sucked out" by the smoking. Latterly the "lump" had a bad taste, and he felt a scalding pain in his jaw. The tumour gradually increased in size; his appetite failed, and he slept badly.

*Condition of Patient on admission to Hospital.*—Face pale, but not presenting the cancerous cachexia. Right side of lower maxilla very much enlarged about the angle. The tumour extends into the digastric space, and occupies the greater part of the body of the jaw (see Plate III., Fig. 2). On opening the mouth a vascular red and firm tumour is observed extending from the right side of the symphysis to the last molar tooth; it is hard, and bleeds on being touched. Patient says he does not suffer much pain.

A microscopic examination of a small portion of the tumour proved it to be epithelial.

I explained the nature of the disease to the patient, and submitted his case to my surgical colleagues for consultation.

It was decided that he should get the chance afforded by excision of the entire right half of his lower jaw, which he willingly consented to; and accordingly, with the able assistance of my colleagues—Professors Hargrave and Geoghegan, and Mr. Tufnell—and in the presence of several medical men and a large class of pupils, I proceeded as follows:—The patient was seated

in a large strong arm-chair used for these operations, and tied in the following manner:—a piece of padded board was placed across his thighs, and lashed to the chair so as to prevent his moving; the hands and arms were also secured.

The following instruments and appliances were at hand:—Spray producers (with *special ether*); scalpels; chain saws (2); Fergusson's saw; L'Estrange's bone forceps; artery forceps; needle, armed with stout ligature to draw forwards the tongue; double tenaculum; probe-pointed bistoury, and probe-pointed scissors; actual cauteries; sponges, brandy, carb. of ammonia, &c., &c.

The patient's head was supported against an assistant's breast, who stood behind the chair. Mr. M'Clean extracted the tooth.

The anesthetic fluid was applied, with two spray producers to the lower lip until the parts were sufficiently frozen. I commenced by making an incision with a scalpel from beneath the red margin of the lower lip to beneath the symphysis, and from that point I made another incision to the angle of the jaw, keeping up on the bone to avoid retraction of the facial artery into the sub-maxillary region. A probe armed with a double ligature was passed beneath the facial artery before dividing it, and having tied the vessel above and below I divided it *between* the ligatures. The flap having been raised I partially divided the symphysis with the small saw, and then having made an opening beneath the chin into the mouth I passed in the curved blade of L'Estrange's forceps, and with one stroke of this excellent instrument divided the bone with the greatest facility, and without any splintering. I next proceeded to dissect the jaw and tumour from the floor of the mouth, keeping as close to the bone as practicable. This having been completed, I dissected down into the digastric space, exposing all the important contents of that region, and with the handle of the knife, and careful manipulation, detached the entire mass without loss of blood. The masseter muscle was next cleared from the bone, and the incision prolonged to the temporo-maxillary region. I grasped the divided symphysis for the purpose of facilitating the removal of the head of the bone from the glenoid cavity, but the jaw fractured near the angle, thus embarrassing the most difficult step of the operation—namely, the disarticulation. By a cautious touch of the scalpel I opened the anterior part of the capsular ligament, and with a probe-pointed scissors divided the insertion of the temporal muscle into the coronoid process. This being accomplished, I hooked out on

my finger the head of the bone, and cut the insertion of the external pterygoid muscle, and finally detached the internal pterygoid. At this stage of the operation the tongue was inclined to slip backwards, and I immediately drew it forwards with a double tenaculum, and transfixed its tip with the needle, ready armed for the purpose, with a stout ligature, and gave it in charge to an assistant. The mouth was kept clear of blood by raising the patient's head, and turning it to the right side, thus favouring the escape of blood, and a stream of *iced* water was poured through the mouth from the left side, which was of great use in checking the oozing from so large and vascular a surface; it, moreover, had the effect of preventing the blood passing backwards, which, from the altered position of the tongue would be highly dangerous.

The wound having been sponged out, and the tongue allowed to pass gently backwards, some brandy and warm water was given before completing the operation. A few small vessels required ligature.

The actual cauteries were not required, and the edges of the incision were brought into apposition with interrupted iron wire sutures. A piece of oiled lint was put inside to support the cheek. The patient was carried with "poles and sheet" and placed in his bed, with warm applications to the feet.

The tongue was kept gently forwards by an assistant, and a full-sized catheter having been introduced into the rectum, stimulants and beef-tea were thus administered; small pieces of ice were put into the mouth.

The patient was visited repeatedly during the day, and although he lost very little blood, he seemed to have suffered considerably from the shock of the operation.

Nov. 7.—Pulse feeble. Patient takes wine and beef-tea and ice; nutritious injections continued; he finds great difficulty in swallowing; lint removed, and the ligature taken from the tongue.

Nov. 8.—Wound looks healthy; water dressing applied; mouth injected with solution of permanganate of potash in tepid water.

Nov. 9.—The right eye permanently open consequent on division of portio dura as it crosses the jaw. Patient takes his nourishment, and sleeps.

Nov. 12.—Rigor.

Nov. 13.—Erysipelatous blush on nose and cheek; pulse quick; wound has healed almost in the entire length; erysipelatous surface



smearred with diluted ung. hyd., and the part covered with raw cotton; bowels freed by enema, and muriated tincture of iron with whiskey prescribed.

Nov. 14.—Erysipelas has extended to forehead and eyes. He took eggs beaten up with whiskey frequently during the day, and a liberal supply of strong beef essence and whiskey.

Nov. 15.—Right half of tongue enormously swollen, evidently from erysipelatous inflammation; an incision was made into the tongue on the upper surface which gave almost immediate relief.

From this date the erysipelas gradually disappeared, and the cuticle desquamated.

The patient got up and went about the ward, but appeared to pine away. Although he took nourishment freely, he gradually sank, and died.

*CASE III.—Successful removal of the Symphysis and considerable portion of the body of the Lower Jaw almost to the Angle, at each side, for Necrosis, without External Incision—No Deformity.*

James W—, a clerk and traveller, aged twenty-nine years, had a severe attack of syphilis five years since, in America. His mouth was made very sore by taking a mixture which had a most disagreeable taste (probably the bi-chloride of mercury). He caught cold whilst under the influence of the medicine. Had nodes on the tibia afterwards, and suffered very much from pains in his head. When his health recovered sufficiently to allow him to undertake the journey home he went to Liverpool, and then (about two years since) he noticed a numbness in his chin which prevented his being able to shave. He applied to a medical practitioner, who treated him for neuralgia. His chin became swollen, and his gums got sore. He thought he was getting gumboils. He left Liverpool and got employment in Manchester as clerk in a paper warehouse.

An abscess formed on the right side under the chin; he went to a surgeon and had it opened. Another abscess formed at the left side, and afterwards a series of them gathered under the chin along the angle of the jaw at each side.

The pain increased, and was always worse at night. The discharge was profuse and fetid. He perspired copiously. His appetite failed, and he could not work. He returned to Dublin, and lost two incisor teeth a couple of days before I saw him.

*Condition of Patient when admitted into Hospital under my care.—*



Face pale and emaciated; his limbs and body are wasted; chin prominent, and exquisitely tender to the touch. Probe passed in through openings, touches dead bone. A number of sinuses, with bright papillæ, are observed from the symphysis to the angle of the jaw at either side. Fetor from breath. On opening his mouth, I observed that two incisor teeth and one molar were gone, and on manipulation six were found loose. Fetid pus wells up between the lower lip and alveolar process. I explained to the patient the nature of his case; proposed operation, which he consented to, having suffered long and got no relief.

*Operation.*—January 27.—Patient having been seated in the stout arm chair, and fixed in it, I drew down his lower lip and detached the structures freely from the symphysis and body of the jaw, keeping close to the bone. I was thus enabled to remove the large sequestrum through the mouth. There was very little hemorrhage.

The patient's health became rapidly restored; he slept well. The space left by removal of bone filled up rapidly with granulations, and he left the hospital in excellent health and spirits in three weeks, without a trace of deformity.

Mr. F. McClean, junr., dentist to the hospital, made him a set of artificial teeth. The accompanying lithograph, taken from a photograph, will show his appearance after operation.

From the history of the foregoing cases, and the details of the operations performed for the removal of the diseased structures, I consider that the following practical conclusions may be summed up in the form of aphorisms, viz.:—

#### CASE I.—*Excision of Superior Maxilla.*

A morbid growth of twenty years' duration in a healthy young subject not likely to be "malignant."

Such diagnosis is confirmed by exploration of antrum with strong small trocar and microscopic examination of contents.

"Myeloid" growth, resembling fibrous tumour, enclosed in the antrum, expands its walls, and involves the periosteum.

Such growth not liable to recur after excision.

Partial excision inapplicable in this form of disease in consequence of its periosteal attachments.

The entire upper jaw can be excised through a single incision, extending from the internal canthus along the side of the nose,

and through the filtrum, leaving scarcely a trace of deformity, thus avoiding hemorrhage and other evil consequences which should result from division of the cheek.

Hemorrhage not to be apprehended if the operation be judiciously performed; and, consequently, the proposal to ligature the primitive or external carotid artery, preliminary to operation, can never be necessary. The knife should not be used except in the first steps of the operation, the tumour to be removed by evulsion with the "lion" forceps, the vessels being consequently torn, don't bleed.

Speech is gradually restored, and the space left by the removal of the jaw is filled up within a short space of time.

Extent of deformity, subsequent to an operation of such magnitude, is remarkably trifling, if performed by the single incision described in this case.

#### CASE II.—*Excision of half the Lower Jaw.*

Extensive incisions are required for the removal of the lower jaw from its articulation, the first commencing below the red margin of the lip and terminating under the symphysis, the second extending from the symphysis to the angle of the jaw (on a line above the lower margin of the bone, to avoid retraction of the facial artery into the sub-maxillary space), and from that point to the anterior surface of the temporo-maxillary articulation.

The facial artery can be readily tied by passing an eyed probe, armed with a double ligature, beneath it before division.

A tooth having been extracted, the symphysis is to be partially divided by a small saw, and the section completed from below by a bone forceps, or by the chain saw.

After section of the symphysis the dissection necessary to detach the jaw from the inside of the mouth must be very carefully made by keeping the knife close to the bone to avoid as much as practicable the falling backwards of the tongue, and the consequent danger of suffocation by closure of the windpipe. So serious an occurrence must be anticipated by passing a stout ligature through the apex of the tongue, and entrusted to an assistant to keep it drawn forwards.

The temporo-maxillary articulation must be opened on its anterior surface, and the operator should keep the edge of his knife very close to the bone to avoid wounding the internal maxillary or external carotid artery.

In such case as No. III., the efforts of nature requiring surgical

assistance, the sequestrum can be removed by operation through the mouth without external incision, and, consequently, without leaving deformity.

In conclusion, I may add that I am not in favour of chloroform in jaw operations, for unless complete anesthesia be produced it can be of but little value, and by interfering with the voluntary act of deglutition life may be endangered by allowing blood to flow into the windpipe.

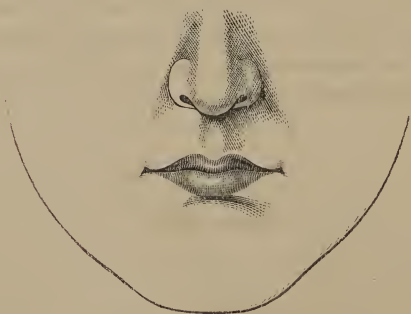
ART. XI.—*The Æsthetic Treatment of Hare-Lip, with a Description of a new Operation for the more Scientific Remedy of this Deformity.* By MAURICE HENRY COLLIS, M.D., Dubl.; F.R.C.S.I.; Surgeon to the Meath Hospital, and Co. Dublin Infirmary, &c.

[Being the substance of a Paper communicated to the Obstetrical Society, December, 1866.]

THE natural condition of the upper lip in its perfect state is as follows:—

Its free margin has the waved outline to which the name of “Cupid’s Bow” is given. Its depth is greatest in the centre. Its margin is connected with the inner margin of each nostril by a curved line. These curves, and those of the free margin, correspond, or have a relation to one another; thus, if the lip be full and freely curved, the lines which pass up to the nostrils will likewise be freely curved, and will include a larger portion of lip than when the margin of the lip is almost straight. In this latter case, the lines referred to are also straight or nearly so. The upper lip may, therefore, be fairly divided into a central and two lateral portions, joined by curved lines (Fig. 1).

Fig. 1



The fissures of hare-lip always correspond to this division.

In the double hare-lip, the fissures cut off the central portion along the curved lines referred to. In the single hare-lip, the central portion remains attached to one side and detached from the other, the curved line being still traceable on the larger portion.

These are anatomical facts of some importance, both in a surgical and æsthetic point of view. Almost from the time of my student



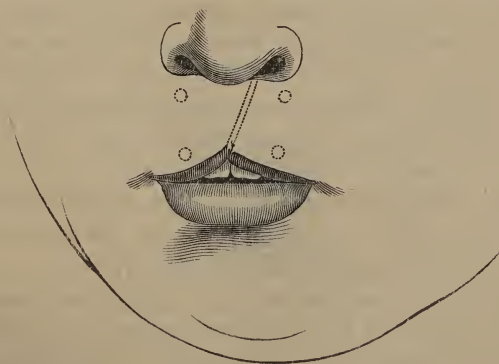
days I have considered the ordinary operation for hare-lip to be deficient in a due regard to the natural condition of parts, and I have followed with interest many efforts made by distinguished surgeons to improve it. Let me first state wherein it is deficient.

The ordinary directions are—first, to divide the frena, true and false, to the fullest extent. Secondly, with knife or scissors to pare the edges, cutting away the rounded corners freely. Some surgeons make these incisions straight, others make them curved with the concavities facing each other.

The evil of dividing the true frenum is that the lip is thrown out of gear, and one of the best means of bringing the distorted nostril into its proper place is sacrificed.

The incisions, whether straight or concave, must result in a straight cicatrix, whereas there can be no doubt that the cicatrix ought, if possible, to follow the curved line which runs, in the natural condition, from the nostril to the margin of the lip. Further, the loss of substance along the margin of the lip is considerable by this method. Hence the resulting lip has a tight margin, which is drawn up by the gradual contraction of the cicatrix, so that ultimately its outline, instead of a graceful wavy line is made up of two straight lines, which at their point of junction allow a tooth to be seen. The contraction of the cicatrix not only tucks up the lip at that point, but it also renders the lip thin along the line of cicatrix, whereas it ought to be thicker and more full along that line than elsewhere. In fact, in place of a curved ridge, we get by the ordinary operation a short depressed straight line, with a lip tucked up in or near the centre (Fig. 2).

Fig. 2.



Such are my objections to the common operation.

One of these is remedied by the operation known as Malgaigne's or Sédillot's, which I learned twenty-one years ago from a fine old English surgeon, the late Samuel Smith, of Leeds. He told me then that he had devised it some twenty or thirty years previously. Whether he ever published it I do not know. This improvement consists in reserving the lower portion of the parings at each side, and turning them downwards so as to form a prominence along the margin. This manifest improvement gave me the first idea of my operation. For some years I was content with it, but by degrees I have added one thing and another to it until I have brought it to a point of perfection, that I am not afraid to challenge attention to.

The rules for my operation are:—

1st. Never to interfere with the true frenum. It is not only unnecessary to divide it, but most pernicious.

2nd. Freely to divide all false frena, and if the alar cartilage is misplaced, let the incisions separate it freely so that it may be fairly drawn into its proper place.

3rd. Never to attempt to close the lip so long as the inter-maxillary bone is misplaced to any extent.

4th. To preserve and utilize all the parings. They are all wanted, as they all have their proper place; to this point I will revert at length.

5th. To use interrupted sutures, and discard all pins or needles as far as possible.

6th. To leave the line of union exposed, using no dressings or plasters for some days.

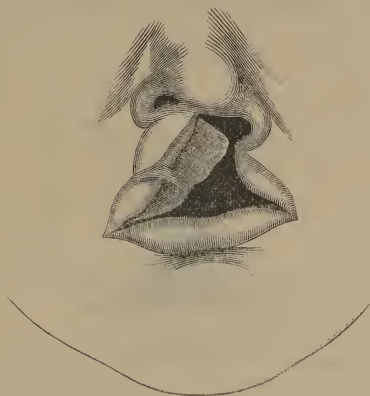
And now to justify these rules:—

1. I never divide the true frenum. Its obvious use is to steady the lip, to prevent muscular action from drawing the centre of the lip away from its proper place. Let any one with his finger or tongue try on his own lip what the uses of the frenum are, or cast a glance on Fig. 3, which represents a case of hare-lip with the soft parts somewhat everted, and the intermaxillary portion much misplaced, and he will see at once what I mean. The division of the frenum unsteadies the lip, makes it tend to run into a string, and, in many cases, leaves a permanent fistula into the nostril. It is, moreover, quite unnecessary, as the parts can be brought into perfect apposition without meddling with it.

2. I freely divide all adhesions or false frena, and I subcutaneously separate all attachments of the ala nasi to the bone which interfere with the proper formation of the nostril. The advantages of this are so obvious that I need not dilate upon them.

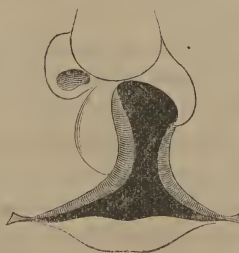
3. Before paring the margins, the intermaxillary bone should be placed exactly in the centre, if not so already. Where there

Fig. 3.



is fissure of the hard palate there is always this displacement. I generally manage this part of the operation by detaching the bone on the sound side by means of a narrow gouge. A strong forceps, with the blades protected with chamois leather, will then force the bone into position. As the nutrient vessels run along the mucous membrane, and chiefly on the inner surface, the gouge is the best instrument for loosening the bone. It may be used freely in this subcutaneous or submucous fashion; in fact, the more freely the bone is loosened the more easy is it to get it into position. The instrument has the advantage of being efficient and

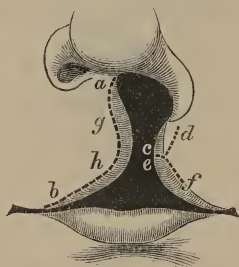
Fig. 4.



simple; no small recommendations now-a-days. The parts will then present the appearance seen in Fig. 4.

4. I never throw away a particle of the parings. My incisions are made so as to make every fragment of them useful. On one side they are preserved to make the lip thick, and on the other to increase its depth. The method is somewhat complex, but a reference to Fig. 5 will make it intelligible. When dealing with single

Fig. 5.



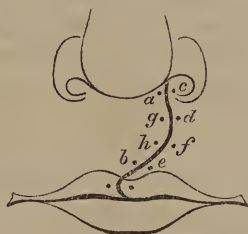
hare-lip, I take the larger portion, that which includes the middle bit, and pare it freely from the nostril round the margin, from *a* to *b*, until the point of the knife comes opposite the frenum. This incision goes through all the tissues of the lip except the mucous membrane. It follows the curved line of the margin of the fissure, and leaves a long wound, which is curved towards the fissure. The flap is left loose, and attached only by mucous membrane. On the other or smaller side of the lip, where we generally find the tissues thin, especially as we approach the nostril, the treatment is quite different. I transfix the lip at *d*, close to the nostril, and carrying the knife along parallel to the margin, as far as *f*, I detach a moderately broad flap, which I leave adherent above to the ala nasi, and below to the free margin of the lip well beyond or external to the rounded angle at the fissure.

This flap, which (unlike the one at the opposite side) comprises all the tissues of the lip, is now divided into two at its centre (*c e*). I thus get two loose flaps, a superior (*c d*) attached to the ala nasi, and an inferior (*e f*) hanging on to the free margin of the lip. The loose end of the upper flap is turned up so that its raw surface faces the wound in the opposite side of the fissure, and the loose end of the lower flap is similarly turned down. The point *c* is brought up to *a* and fastened there. The point *e* is brought down to *b* and fastened there. I have thus got on the small side of the lip a wound as extensive as that on the larger side. The upper flap



completes the outline of the nostril. The lower one supplements the outline of the free margin of the lip. I thus get a lip nearly double in depth what I could possibly have got by the ordinary incisions (Fig. 6). I shall revert to the treatment of double hare-lip further on.

Fig. 6.



5. I use, as a rule, sutures of horse-hair, as being less cutting than wire and less irritating than silk or thread. Pins, except very fine insect pins, I have discarded. Even these I use but rarely. A well-tied suture holds the parts together with sufficient firmness. It can be removed at any time, whereas the pin must remain until it becomes loosened in its bed by suppuration; hence the mark of a suture is trifling compared with that left by a needle or pin. The spot which requires a pin most frequently is the ala of the nostril. It tends to revert to its old position with more force than the lip, and it often needs the stronger pull of a pin.

I generally insert the upper suture first, then the one close to the line of junction of the red and white, then the two intervening sutures, in the order that seems most suitable in each case. Sometimes I have inserted a suture on the inner or mucous surface of the lip. Sometimes this is not necessary. Generally I put a fine suture just along the free margin to keep the lower flap in its new bed until it contracts adhesion there.

The sutures are removed, one after another, those near the margin first, the upper two last. As to time of removal much will depend on the age of the child, and on the firmness of its flesh. Thus in a strong child a suture may be left three or four days, while in one more delicate it may have to be removed in forty-eight hours. Sutures should never be left long enough to ulcerate.

6. By this treatment of the sutures, plasters and dressings are dispensed with until some days have elapsed. They are applied only when the sutures are removed, and with a view to prevent the lip

from thinning. I generally find that all the wound heals by first intention, and the presence of plasters rather interferes with this process, at least so long as the sutures are left. When plasters are used they have to be removed when we wish to inspect the lip, and their removal disturbs the delicate process of union. By leaving the lip uncovered we can watch the progress of the cure, and it is easy to apply a strap at any moment if it be really needed. The use of Hainsby's truss will, in most cases, make it quite unnecessary to use plasters of any kind. Collodion is sometimes useful, but it should be made very thick. The ether in thin collodion acts injuriously on the healing process.

As to the age for operating, I have done so successfully in a child under three weeks, and I have seen others of twice as many months in whom I refused to operate. The question is entirely one of the strength of the child, and the firmness of its flesh.

With regard to complicated double hare-lip (Fig. 7), the first point to be attended to is, in like manner, the strength of the

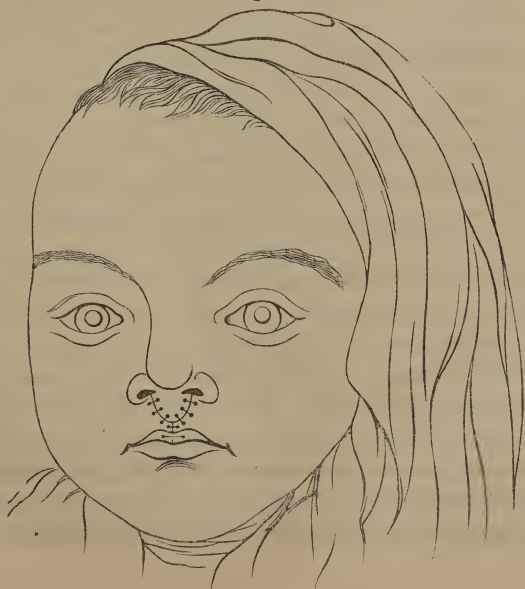
Fig. 7.



child, which, as a rule, is far below par. When, by careful feeding, this has been brought up to a proper state, the protruding intermaxillary bone has first to be replaced. It should never, under

any circumstance, be removed. This is, in fact, so well established an axiom of surgery, that it need not be insisted on. It is not always easy to bring it into its proper site. There are three methods to choose from; one is to separate it completely from all bony attachments, and to leave it for a time pendulous, adherent only to the central portion of the lip. This is the best way when practicable. The second is to take a V-shaped piece out of the vomer. The third is a new method which I have tried, and which has the advantage of helping materially to lessen the gap in the palate. It consists in cutting off an oblique portion of the vomer along with the inter-maxillary bone. Whichever method is adopted, the bone is best left undisturbed for a few days after this stage of the operation. Nothing is more fatal to success in these cases than the effort to do too much at a time. A few drops of ether will sufficiently anesthetize the child to prevent its being frightened by repeated operations; success of the highest kind can only be obtained by doing the operation bit by bit. It is easy no doubt to conclude all at one sitting—but not to conclude all well. I therefore advise that, as a rule, the bone when detached in any of the above methods, should be left undisturbed for a few days before any attempt is made to push it back or retain it in its new position. Yet if it goes back easily, the remainder of the operation may be done at one sitting.

Fig. 8.



I treat the middle bit of skin as in simple hare-lip, paring its margin in a curved manner, and leaving the parings attached by the mucous membrane; the outer portions are treated exactly as in single hare-lip, and the sutures are practically the same. In double hare-lip they are best inserted, and tied from below upwards. The amount of the central portion which can be made to contribute to the lip, is never very great, and the strain on the upper portion of lip is often very considerable. In these cases the use of Mr. Hainsby's truss is of the greatest service.

It is surprising how beautifully the flaps, made after my method, fall into and fill up the places intended for them; how naturally the form of the nostrils is restored, and the curves of the lip. The faithful woodcuts of Mr. Oldham show the perfection of outline, and the great increase in depth of the lip as contrasted with the results of the old operation (Fig. 8).

In conclusion, I recommend this improvement in plastic surgery to the kind consideration of my professional brethren. I am satisfied that when tried it will be found a real advance in operative surgery, and one that all will confess was much needed in this department.

I shall give one case, out of many, as a sample of the results of my method of operating. It was further remarkable as an example of the ease with which fissures of the palate can be treated under chloroform. We have been in the habit, in Dublin, of using chloroform freely in all operations about the jaws, mouth, or fauces, and for at least three years I have done all my cleft palates under chloroform. It gives great facility to the operator, and is not dangerous to the patient, unless by culpable negligence. By means of it we can operate on infants and children. For my own part I prefer not to operate on the palate before the age of four or five years; the tender tissues of younger children scarcely bear the strain of sutures, or the preliminary manipulation with forceps, and raspatory. But from the fourth or fifth year there is no such objection, and, if practicable, the operation should not be deferred beyond that age. It suffices to chloroform the child deeply at first, and to let it come to a semi-conscious state. I have hitherto found children in this condition perfectly amenable. They seem to hear, and they obey our directions about the position of the head, the keeping of the mouth open, and the emptying of the mouth; and they do not feel either pain or discomfort. A few drops of chloroform, or chloroform and ether, now and then, will keep up this condition for any reason-



able length of time. The blood is either spit or sponged out, or quietly swallowed. I have never seen it get into the larynx, nor can it well do so, as it is guided away from it by folds of membrane leading from the epiglottis backwards. The fauces should be well sponged as the operation goes on, otherwise the blood may clot there, but there is no difficulty in doing so. A piece of elastic ribband along the back of the neck with blunt hooks of double wire at either end will keep the mouth open, aided by the handle of a spatula or any roughened piece of wood as a gag between the teeth. I have operated seven times under chloroform, and my friend, Mr. Smyly, has also used it; we have never found any inconvenience from its use, and, in our opinion, it greatly facilitates the operation. The patient lies quietly on the operating table, and the surgeon standing at his right side is able to show the steps of the operation to the class as he goes along.

*Case of Single Hare-Lip, with Cleft Palate and Displacement of the Intermaxillary Bone.*—Pat Mulveagh, under five years of age, was sent up to me from Virginia, in Co. Cavan. He had complete congenital fissure of the palate, extending through the alveoli, and complicated with hare-lip on the right side. The intermaxillary bone was much displaced, its edge projected forward through the fissure in the lip, and the gap between the bones was wide enough to admit the little finger. He was a fine healthy boy, with fair intelligence, but subject to uncontrollable fits of passion, in which he would obstinately refuse to open his mouth for inspection, and which were frequently brought on by asking him to do so. This was the result partly of fear and partly of his having been made fun of by his playmates for his appearance and mode of speech. By degrees we got him cured of this, mainly through his losing all fear of pain, as a result of the chloroform.

On the 9th day of August, 1867, in the presence of a number of members of the British Medical Association, I operated on his palate under chloroform. I selected a modification of Mason Warren's operation, and had every reason to be satisfied with it.

Making a small incision in the muco-periosteum near the first molar tooth, I pushed in Langenbeck's straight raspatory between the soft tissues and the hard palate so as to detach all the soft tissues from the bone, posterior to a line drawn from the first molar of one side to that of the other. With this instrument I detached all the

muco-periosteum on each side as far back as the posterior margin of the palate bones, and inwards to the margin of the cleft; the instrument brought down some of the soft covering from the upper or nasal surfaces of the bones, so that I had ample material without tension. A stroke or two of the curved scissors, along the margin of the palate bones, divided and paralysed, for the time, the muscles at the back of the palate as they were stretched over the bones by the falling down of the flaps. The margins of the soft palate were

Fig. 9.



now pared, and any points along the loose flaps that seemed to require it were similarly trimmed. Sutures were inserted of horse-hair to the number of seven.

The soft palate, except a small point at the tip, united, and a considerable piece of the hard, so much so that it was evident that the replacement of the misplaced intermaxillary bone would all but close the remainder.

On the 6th November I put a couple of stitches in the soft palate, and then operated on the lip in the manner detailed in this paper. First, I separated the intermaxillary bone with the gouge. Secondly, I divided freely the false frenum, and detached subcutaneously the ala of the nostril from the bone. Thirdly, I pared the

margins exactly as figured in the plates, and lastly, I inserted the sutures, and drew the parts together.

On the 3rd day I removed one suture; on the 4th another; and on the 6th the rest.

The result after a month is well shown by the photograph. I specially call attention to the depth of the lip from the nostril to the prolabium or margin, also to the curved outline of the cicatrix and to the good form of the nostril.

The photograph was taken when the scar was still new, and the



mark of the cicatrix is much plainer than when the boy left hospital for his home. This is of set purpose, as I wished the line of the cicatrix to be perceptible. Had I waited another month to take the photograph, there would have been no trace of it, and though the result would have been perfect as a picture, it would not have so well served the purpose I had in view, of rendering my mode of operation intelligible.

ART. XII.—*Contributions to the Study of some Thoracic Diseases.*

By JAMES CUMING, M.A., M.D.; Professor of Practice of Medicine, Queen's College, Belfast; Physician to the Belfast General Hospital, etc.

I.—*Case of Aneurism of the Thoracic Aorta. Fatal Termination by Rupture into the Trachea. Tracheotomy Thirteen Days before Death.*<sup>a</sup>

James Sterling, aged thirty-eight, labourer, married, was admitted into the Belfast General Hospital, January 25th, 1868.

*Family History.*—The patient and one sister are the only surviving members of a family of seven, the others having died young. Father died of fever; mother of dysentery.

*History.*—He has always been temperate and healthy; has never had syphilis. He was engaged at easy work until lately, when he got employment in a ship-yard. Here he was often obliged to lift and carry heavy weights. He was engaged about seven weeks in this employment, when he began to notice a whistling in his breathing, and to observe that his breathing became difficult when he carried heavy burdens. The whistling at first was observed only during expiration, but afterwards with both inspiration and expiration. The sound became gradually louder, and was increased by exertion and by going into the cold air from a house. The first symptoms of noise and difficulty of respiration were noticed about the end of December.

*Present Symptoms.*—The respiration is distinctly but not loudly stridulous, and there is no dyspnea when the patient is perfectly quiet. On the slightest exertion, however, such as sitting up or turning in bed, the stridor becomes loud, and distressing dyspnea is felt, which is still further increased by walking, and the stridor becomes audible at a considerable distance from the patient. The dyspnea is not influenced by position. He has a troublesome cough, which has nothing peculiar in its sound, and a scanty glairy expectoration. Tongue clean, appetite good, bowels regular; he sleeps pretty well; pulse 75, when quiet and in the recumbent position, but greatly accelerated by exertion. The patient is pale, and has an anxious expression, but is tolerably stout and well nourished, although he states that he has latterly lost flesh; voice slightly husky, but not impaired in strength.

<sup>a</sup> Reported by Mr. Andrew Hegarty, Clinical Clerk.



Fig. I

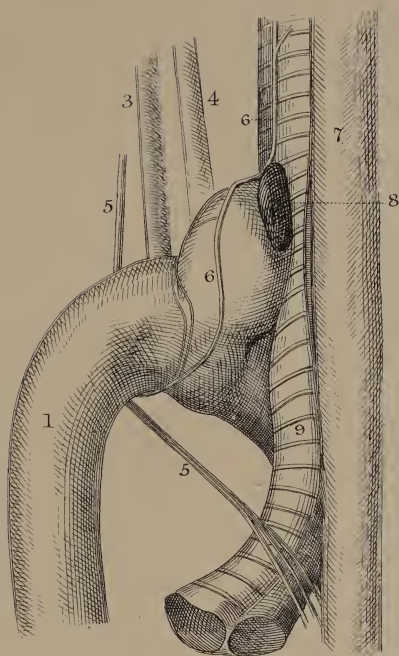
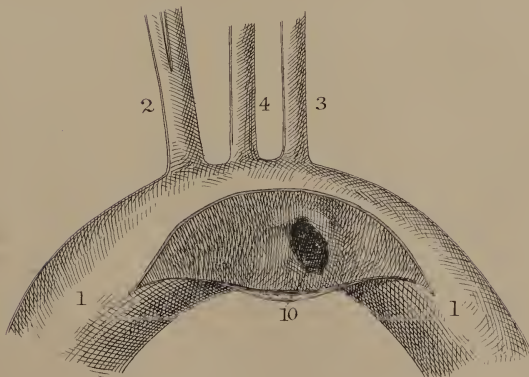


Fig. II



# DESCRIPTION OF PLATE.

Fig. I.—The descending aorta, and a portion of the arch are turned aside to expose the aneurism.  
Fig. II.—The aorta laid open to show the opening into the sac.

The numbers refer to the same objects in both figures:—1, aorta; 2, innominate; 3, subclavian; 4, carotid; 5, pneumogastric of left side; 6, recurrent nerve of same passing over the aneurism—a branch from this nerve is seen passing to the deep cardiac plexus; near it is a small filament from the sympathetic to the same plexus; 7, oesophagus; 8, an enlarged bronchial gland; 9, trachea; 10, opening into aneurismal sac.

DR. CUMING'S CASE OF ANEURISM.



*Physical Examination.*—A prominence is observed at the junction of the second rib with its costal cartilage, and the sternum is somewhat convex and bulging at a point corresponding to this. No thrill or pulsation is perceptible; percussion over the prominence elicits a dull sound, but only when the stroke is made on the side furthest from the sternum; every where else the sound is quite normal; on auscultation the stridor seems loudest at the sternal notch; no difference in the respiration can be noticed on examining the two sides. There is a slight prolongation of the first sound at the base of the heart, hardly amounting to murmur. With this exception there is no abnormal sound to be detected. I made a laryngoscopic examination, but the patient did not bear the mirror well, and the attempt was productive of so much dyspnea that it was not repeated; as far as it was seen the larynx seemed healthy.

He seemed much benefited by the application of a couple of leeches to the trachea every alternate night, and by a little paregoric. Complete abstinence from exertion was enjoined.

February 21st.—Some streaks of blood were observed for the first time in the sputum, and a little was noticed occasionally during the subsequent fortnight, the quantity never exceeding a few drops in the day. I ventured to make the diagnosis of aneurism, and in a clinical lecture delivered at this time on this and two other cases of aortic aneurism which happened to be under my care in hospital at the same time, I drew the attention of the students to the positive and negative results which the examination of the patient gave us.

1st. Prominence and slight dulness at a particular part of the chest

2nd. Stridor and dyspnea of recent origin, and greatly aggravated by exertion.

On the other hand we had total absence of auscultatory signs, of pain, of characteristic cough, of any marked alteration of voice, of dysphagia, of inequality of the pulses or of the pupils, and of any venous congestion. With regard to the prominence and dulness, I attached little weight to its presence, as there was no pulsation or thrill or bruit detected over it, and I based the diagnosis mainly on the symptoms of dyspnea and stridor, the larynx being free from disease, and the probabilities being greatly against tumour, owing to the age and health of the patient. I ventured also to say that the aneurism must press upon the trachea itself in consequence of the respiratory sounds being equal in both sides. I suggested that possibly the hemoptysis might depend on a very minute

perforation, as had been observed in some cases, and that an early and rapidly fatal issue was to be apprehended. The further progress of the case may be briefly recorded.

March 3rd.—The attacks of dyspnea, which, being previously only aroused by exertion, had now begun to appear without any apparent cause, and were of a very severe character. They occurred usually in the evening, and distressed and alarmed him very much; but they did not occur oftener than once in the twenty-four hours, and a day sometimes passed altogether without any of them supervening. I spoke to him of the possibility of tracheotomy becoming necessary during some of these attacks; however, he naturally objected very strongly to the idea.

March 4th.—After a quiet night he seemed at visit to be tolerably easy. Before I left hospital, however, I was summoned by a nurse to see him, and found him in a deplorable condition, gasping for breath, making desperate efforts to get air into the chest, the lips livid, the skin covered with cold sweat, the pulse rapid and feeble, and the stridor accompanying the respiration of the loudest description. When he saw me he said that his heart was breaking. Several members of the staff who happened to be in hospital came to see him, and agreed that tracheotomy was urgently required to avert the imminent danger of suffocation. While we were speaking he suddenly exclaimed "Thank God! I am better," and for a few minutes seemed relieved, but the dyspnea returned with increased severity, and it was clear that he could not survive any prolongation of his terrible sufferings. He consented to the operation, which was performed by Dr. W. MacCormac, assisted by Dr. Murney, and in the presence of Dr. Smith and of myself. The breathing became at once easier, but there was still a good deal of dyspnea, which continued during the night. He was able, however, to lie down and was much relieved. He was placed in a small ward, and the air was kept saturated with the vapour of boiling water.

From this period he had no suffering whatever from dyspnea. There was some cough and expectoration of a bronchitic character for a few days owing to irritation of the air passages. He had a little morphia at night and slept well. His appetite was fair, and he was easy and comfortable, and expressed himself hopefully as to his recovery. He was able to get up and sit at the fire without any distress from the exertion, an effort which, during the previous month, would have brought on severe dyspnea.

On the morning of the 23rd I entered the ward accompanied by



Dr. Henry Brown and some students. He expressed himself as being very well, and was anxious to be allowed to go to a larger ward, in which he had been previous to the operation, so as to have the society of the other patients. While speaking a few drops of blood came from the opening in the trachea, which he wiped away, remarking that this was the first blood that had appeared since the operation. In a moment a gush followed; he coughed up a large quantity, which came both through the mouth and through the opening; the breathing was accompanied with a loud gurgling sound, and after a few minutes of this frightful scene, which seemed horribly long, he was dead, the heart continuing to beat for some time after respiration had apparently altogether ceased.

*Post mortem.*—The body was plump, and a good deal of subcutaneous fat existed. The lungs were found to contain a large quantity of blood in the air cells and bronchi, and collapsed very imperfectly. An aneurism was found pressing upon the left side of the trachea, and springing from the posterior part of the transverse portion of the arch of the aorta, below and beyond the origin of the subclavian artery. The parts were removed and were dissected with great care. The aneurismal tumour, which was about the size of a large walnut, and which is figured in the accompanying plate, had produced a considerable amount of pressure upon the side of the trachea, and had caused a projection into it which diminished its calibre considerably. There was an opening into the trachea through which a No. 4 catheter could be passed. The recurrent nerve of the left side, as well as a branch from it to the deep cardiac plexus, was found to be compressed, diverted from its course, and closely adherent to the left side of the tumour. Another small nerve, from the sympathetic, going to the same plexus, was also found adherent to the aneurism, and is figured in the plate. On the right side of the tumour a large cardiac branch of the right vagus seemed to have suffered also, but to a less degree than the recurrent. It was thickened, adherent to the tumour, and was probably pressed upon by it. The interior of the aorta showed a considerable amount of atheroma, especially in the neighbourhood of the opening into the sac. The parts beneath the prominence which had been observed during life were examined, and it was found that no cause existed within the thorax for the bulging. It had been probably brought about by the action of the scaleni, being more forcible than usual in consequence of the difficulty of breathing, or it was perhaps of congenital origin.

*Observations.*—The points of most interest in this case are:—

Firstly—The possibility of arriving at a correct diagnosis of aneurism from symptoms in the absence of any physical sign derived from the organs of circulation. The case resembles closely one related by Professor Gairdner, in his work on Clinical Medicine<sup>a</sup>—a work to which the profession is indebted for much valuable information on this interesting and difficult subject. In Dr. Gairdner's case the patient died from suffocation, notwithstanding the performance of tracheotomy, the aneurism remaining unruptured. This termination was caused by the refusal of the patient to submit to tracheotomy at an earlier period, and I have no doubt that a similar termination would have occurred in my case had the operation been much longer deferred.

Secondly—The interesting practical fact of the great relief which was afforded by the tracheotomy. Not only were the urgent symptoms which threatened speedy dissolution at once mitigated, but the patient had the inexpressible comfort of being completely free from the distressing dyspnea which every exertion had caused. He passed the remaining days of his life in what might be relatively considered ease, the suffering from the wound in the trachea being quite inconsiderable. He was able to get up and sit at the fire for some hours daily without any suffering being caused by the necessary effort, and in all probability his life was somewhat prolonged, for the exertion which the paroxysms necessitated might have brought about an earlier rupture.

Thirdly—The almost complete integrity of the vocal functions while the respiratory functions were so seriously interfered with, and the recurrent laryngeal subjected to so much pressure. That laryngeal spasm was induced by exertion is evident, and it is difficult to get a satisfactory physiological explanation of why the voice was not to any considerable extent impaired. The slight huskiness which was noticed was not greater than occurs in cases when cough has existed for some time.

Fourthly—The interference with the nerves going to the cardiac plexus. It is possible that this may be in some cases the cause of the symptoms resembling angina, and of the disturbance of the circulation, which have sometimes been observed in connexion with aneurism. This interesting physiological point is only capable, however, of being worked out when the influence on the movements

<sup>a</sup> Case I. p. 455.

of the heart possessed by the vagus and the sympathetic system is much more clearly known than at present.

Fifthly—The explanation of the dyspnea and stridor. It was probably mainly dependent on two causes: the direct narrowing of the trachea produced by the lateral pressure on it by the aneurismal tumour, and the spasm induced by the increased pressure on the left recurrent nerve, which was brought about by acceleration of the circulation, leading to augmented arterial tension.

The former was probably the cause of the stridor observed when the patient was quiet, which was accordingly tracheal; the latter by giving rise to laryngeal spasm was the cause of the aggravation of the symptom when exertion was made.

*On Mitral Regurgitation not arising from Organic Disease.—*

The possibility of the occurrence of regurgitation, through the mitral valve, independently of organic disease of any portion of the heart, is a question of great pathological and practical interest. The recognition of the characteristic murmur of mitral regurgitation is generally, and, no doubt, in the great majority of instances, rightly regarded as indicative of serious organic disease. There is reason to believe, however, that inorganic or functional murmurs are of more frequent occurrence than has been hitherto supposed. Functional disturbance of the heart, being usually a remediable affection, there is rarely an opportunity for examining the state of the valve, except in cases in which organic disease has existed. Various observers have, however, been struck by the apparently anomalous circumstance of the left auriculo-ventricular opening and its valve being found, on examination, to be perfectly healthy in cases in which murmur, apparently caused by valvular incompetence, had been heard during life. Such cases can be accounted for only by one of two explanations—either that a mitral murmur may be generated without regurgitation, or that derangement of the valvular function may be brought about by functional causes.

As far as regards the former of these two hypothesis, I have taken for granted that the existence of a systolic bellows-sound, possessing the usual characters of a mitral murmur in respect of situation, maximum intensity, and direction of transmission, necessarily involves regurgitation through the left auriculo-ventricular opening. This, which is the almost universal opinion among physicians who have paid special attention to cardiac diseases, is in



opposition to the opinion of no less eminent an observer than the late Dr. Todd. Todd believed that a murmur might be engendered at the mitral valve in consequence of the deposition of lymph on its ventricular surface, the competence of the valve remaining quite unaffected, and, of course, no reflux taking place into the auricle; and even held that this condition of the valve could be distinguished from a condition producing incompetence by a special modification of the auscultatory signs.<sup>a</sup> This opinion of Todd has been regarded with little attention, and has not been adopted, as far as I am aware, by any considerable authority on cardiac disease. Indeed, although it is generally admitted that roughening of the endocardium in the neighbourhood of the arterial orifices may give rise to systolic murmur, it is impossible to conceive how a mitral murmur can be generated of sufficient intensity to be audible below the scapula, unless a current of blood flows through the imperfectly closed valve.

The second hypothesis will be discussed after the account of the subsequent case, which bears upon the question, and has some interest in connexion with it.

CASE I.—R. C., aged thirty-three, was admitted to the General Hospital on July 30th, 1867, suffering from dropsy. She was married, and the mother of three children.

She had been a healthy woman until four months ago, when she was suddenly frightened, she being then advanced in pregnancy; she did not miscarry, but from that time she began to suffer from palpitation, and soon after her confinement œdema of the lower limbs became evident. The heart symptoms and the dropsy had continued since, occasionally much relieved by treatment.

There was considerable anasarca and dyspnea, and she complained much of palpitation. The urine was not albuminous. A systolic bellows murmur was audible on placing the stethoscope over the heart, loudest at the left apex, and distinctly audible at the

<sup>a</sup> "If the bellows-sound be purely regurgitant, its position is strictly at the apex; it becomes in a marked way faint as you proceed to the base of the heart, and it is distinctly audible beneath the left scapula; and, in addition, the sign pointed out by Skoda, exists—namely, a marked intensification of the second sound. If the bellows-sound be not regurgitant, you hear it well up to the base of the heart; you hear it only feebly, or not at all, at the left scapula, and there is no intensification of the second sound. I may add that, in this latter case, the heart's disturbance, and the sufferings of the patient, are in a marked manner less than in the former."—*Clinical Lectures by Dr. Todd*, 2nd ed., p. 77.



inferior angle of the left scapula. Its intensity diminished as the stethoscope was removed from the left apex. The heart was very often examined by the clinical class, and no doubt was entertained as to the case being one of well-marked regurgitation through the mitral valve. There was no diastolic murmur nor any bruit in the large vessels. The jugulars were somewhat turgescient, but did not pulsate, and the intensification of the second sound, pointed out by Skoda, was not observed. There was nothing remarkable in the progress of the case. It was necessary occasionally to puncture the legs and thighs to relieve the dropsy. There was much pulmonary congestion, a good deal of severe dyspnea and distress, and she expectorated frequently small quantities of dark blood. The symptoms were ameliorated occasionally for a time, but no permanent improvement took place.

I learned that about three weeks before her admission she had been discharged from hospital after having been an inmate for nearly four weeks. She had been admitted under the care of Dr. Ross for symptoms of a similar kind to those under which she now laboured, but much less in degree. Dr. Ross also regarded her disease as incompetence of the mitral valve.

On October 1st she was transferred to the care of Dr. Drennan, who took charge of the ward in which she was, according to the system of rotation pursued in the Belfast Hospital, and she remained under his care until her death, on November 1st, 1867. It is to his kindness that I was enabled to obtain the examination after death.

The *post mortem* was made under circumstances of difficulty, and only the heart could be removed. It was examined carefully; the aorta and the pulmonary and tricuspid valves were found to be perfectly healthy; the mitral valve was well formed, and quite free from any evidence of disease, except a very slight thickening, about the size of a small shot near the free edge of its anterior flap. The circumference of the left auriculo-ventricular opening was found to be three inches and six lines; that of the right, three inches and eleven lines. The cavities seemed quite normal as regards capacity and shape, and the muscular structure of the heart was firm and well coloured. The *carneæ columnæ* were well developed and firm, and nothing abnormal could be discovered in the *chordæ tendineæ*. I exhibited the heart, and read the notes of the case, at a meeting of the Ulster Medical Society, and it was carefully examined by several members of considerable experience in pathology and

anatomy who were present, and the unanimous opinion was, that there was no evidence of their being anything whatever abnormal in its condition. The heart was specially examined with reference to the suggestion which has been put forward by some observers<sup>a</sup>—namely, that atrophy of the muscoli papillares and smallness of the chordæ tendineæ may become important causes of valvular incompetence, but with an entirely negative result.

The appearance of the valve, as well as the symptoms and physical signs, presented a remarkable resemblance to Case I., published in the first of the admirable papers on “Diseases of the Heart,”<sup>b</sup> by Dr. M'Dowel. In Dr. M'Dowel's case, however, great dilatation of the left ventricle, and softening of its muscular tissue, existed, a condition which, as has been insisted on by Dr. Gairdner, may produce regurgitation through the auriculo-ventricular opening without the existence of any disease of the valve. No such change existed, however, in this case.

*Observations.*—It is of interest to observe that the first symptoms of ill health occurred subsequently to the patient having been frightened, the fright having taken place when she was in the pregnant state, a condition in which the nervous system is probably unusually susceptible of injurious influences of this kind. In chorea, a disease not unfrequently observed in pregnant women, mitral murmurs are occasionally observed, and these are attributed, with much probability,<sup>c</sup> to disordered innervation of the muscular apparatus connected with the valve. The idea naturally suggested itself that the valvular derangement might have been caused by the strong mental impression giving rise to spasmodic action of some of the papillary muscles. The influence of mental emotion in causing spasm of so partial an extent as that which produces strabismus is well known, and there is nothing inconsistent with our knowledge of the very limited and local phenomena which may be engendered by nervous impressions in this supposition. Of course, antecedently, it would be highly improbable that spasmodic action should continue persistently for so considerable a period, and should give rise to phenomena of a character so regular and uniform. Intermissions and irregularity would be much more likely to occur, and for this reason Dr. Bristowe, in an elaborate paper on

<sup>a</sup> Bristowe. Brit. and For. Med.-Chir. Rev., Vol. 20, p. 229. Peacock on some of the Causes and Effects of Valvular Disease of the Heart, 1865, p. 59.

<sup>b</sup> Dublin Quarterly Journal of Medical Science, Vol. 14, p. 354.

<sup>c</sup> Walshe. Diseases of the Heart, 3rd ed., p. 96.

inorganic mitral murmurs, previously referred to, dismisses somewhat summarily the notion of spasmodic action having any influence in the causation of mitral regurgitation, and attribute the incompetence to the dilatation of the ventricle, and atrophy of the chordæ tendineæ and musculi papillares. Yet it may be reasonably doubted whether we are enabled altogether to exclude such a mode of causation. Instances have been observed both of continuous and of rhythmic spasm,<sup>a</sup> of a nature quite as extraordinary as would be involved in such a supposition. The constantly recurring irritation of the blood entering the cavity of the ventricle might possibly bring about a constantly recurring spasmodic action. Indeed, an excellent observer<sup>b</sup> has suggested that even the inorganic murmurs which are so frequent at the aortic orifice may be referred to perverted innervation.

Besides, it is impossible to refer the case which follows, and several of the cases recorded by Dr. Hayden, in a paper to be afterwards referred to, to a dilated condition of the ventricle, unless, indeed, we are prepared to admit that a condition of dilatation, so considerable as to give rise to regurgitation, is capable of being rapidly produced and rapidly removed, a view which is not consonant with pathological or clinical experience. In this case there was certainly no appreciable dilatation. It is, no doubt, difficult to pronounce definitely on the absolute capacity of a ventricle, but any considerable dilatation would be readily recognized. It is curious, that out of six cases which are adduced by Dr. Bristowe in support of the dilatation theory, two are cases in which the dilated condition of the heart was only inferred and not actually observed at the *post mortem* examination; and as regards the condition of the musculi papillares and the chordæ tendineæ, in three of the six the actual condition on which so much stress is laid was also not observed.

A point, however, of much greater practical importance is the

<sup>a</sup> The Nervous System, by Sir Charles Bell, 1830, Appendix, p. 41 and 42. Parry, quoted by Romberg Diseases of the Nervous System. Vol. i, p. 287.

<sup>b</sup> "It is certain that, even when spanemia and anemia exist, functional murmur is commonly confined to cases characterized by palpitation—a result of nervous irritability—and that profuse venesection, hemorrhage, and other causes of spanemia, are also productive of palpitation, and of exalted nervous excitability. Therefore, without denying that an anemic and spanemic condition of the blood must necessarily facilitate the production of vibration and murmur, it seems to me probable that these functional murmurs are more closely connected with perverted innervation and disordered contractility of the valves and large vessels than with a mere alteration in the condition of the blood."—Fuller. Diseases of the Heart and Great Vessels, p. 47.



occurrence in this case of marked pulmonary congestion and of anasarca. In a very able paper, read at the recent meeting of the British Medical Association in Dublin, Dr. Hayden dwells on the absence of pulmonary engorgement as an important element in the diagnosis of inorganic mitral murmurs. It is impossible to comprehend why a regurgitation from functional derangement of the valve should not be accompanied or followed by the same disturbance of the circulation as would be brought about by a similar amount of regurgitation owing to actual changes in the structure of the valves. Indeed, it would seem more probable that the obstacle to the return of blood from the lungs would be, *ceteris paribus*, greater in some of the former cases, as the incompetence of the valves would be occasionally produced rapidly, and even suddenly, while in a large proportion of cases of organic change the incompetence would be of slow and gradual growth. Nor is there any reason why inorganic regurgitation should not be of very considerable amount. The fact, no doubt, is that the amount of pulmonary congestion, and the date of its appearance, are regulated by the amount of the incompetency, by the state of the ventricle, and by the general condition of the patient. It is very probable that several of Dr. Hayden's cases would have exhibited signs of pulmonary and systemic congestion had the regurgitation not yielded to treatment.

The anasarca and congestion of the lung, which existed in my case, cannot be attributed, I believe, solely, or even mainly, to the condition of the valve. The feeble, ill-nourished, and anemic state of the patient was, no doubt, powerfully instrumental in the production of the dropsical condition. But that there was a difficulty imposed upon the heart was shown by its firm and well-developed character of tissue. Indeed, a condition of what may be called relative hypertrophy seemed to have been induced. The heart might have been reasonably expected to share in the prevailing atrophy and wasting of the body. It was, on the contrary, an organ such as might have belonged to a strong, healthy woman. This points towards a cause having existed which kept up an abnormal stimulation of its nutrition, and renders it probable that had life been much prolonged actual hypertrophy would have been produced.

#### CASE II.—*Mitral Regurgitation of a Temporary Kind.*

A gentleman, aged thirty-three, married for about two months, of



strictly moral and temperate habits, and who had always enjoyed excellent health, was seen by me in consultation with Dr. Newett, of Moneyglass. He suffered from great exhaustion, and from a feeling of faintness when he sat up more than a few minutes at a time. He had injudiciously taken purgative medicine with the idea of his illness being the result of biliousness, and, in consequence, the bowels were rather relaxed. There was no evidence of active disease of any kind; the tongue was clean, pulse 80, and very soft, and there was some appetite. On examining the heart a soft bellows-murmur was heard at the left apex, transmitted towards the left axilla, but quite inaudible at the base of the heart, and only faintly audible at the right apex. He had never had any rheumatic affection, nor any symptom of cardiac disease, and he had been examined for life assurance a short time previously by an excellent and careful stethoscopist, who had not detected any abnormal condition of the heart. Under these circumstances, I inclined to the opinion that the murmur was of functional origin, an opinion which was verified by the progress of the case, as under tonic treatment and rest he completely regained his strength, and the murmur gradually subsided. I had an opportunity of examining his heart a few days ago, and found that its action and sounds were perfectly normal, and free from any trace of murmur.

The conclusions to which a consideration of the last two cases and observations lead are—firstly, that mitral regurgitation may be produced without organic disease of any kind, and—secondly, that it may in some instances give rise to the same physical signs and to the same general symptoms as regurgitation from organic causes.

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ART. XIII.—*On Excessive Sweating.* By ARTHUR WYNNE FOOT, M.D.; Fellow of the King and Queen's College of Physicians.

IN a former volume of this Journal<sup>a</sup> I made some remarks upon certain phenomena of the perspiration known as coloured sweating and fetid sweating. I wish now to refer to some of those cases in which the secretion of water from the skin is remarkable rather from its sensible increase in quantity than from any anomaly in its quality. There are many difficulties, some of them apparently insuperable, which prevent the attainment of a standard quantity by

<sup>a</sup> Vol. xli., pp. 64, 327.

which to define metrically what might be termed excessive sweating. The functional activity of the three great channels for excretion of water—the skin, lungs, and kidneys—is liable to vary in obedience to causes acting from within over which an experimentalist has little control, while, in addition, the power of mutual substitution with reference to aqueous secretion which the skin and kidneys enjoy, and the artificial conditions under which investigations as to the healthy average amount of perspiration must be made, cause but a subordinate value to be attached to the various statements made as to the normal amount of perspiration. Excessive or visible sweating, however, practically consists in an exaggerated activity of the perspiratory glands, causing a notable untimely weeping of the skin, and an annoying wetness; such an occurrence, when not due to increased exertion or high temperature, implies a disturbance in the innervation of the affected tract of skin. Under ordinary circumstances no liquid water appears on the surface of the integument, and the vaporous exhalation of the skin must be condensed before it becomes visible; hence the normal process of perspiration is called insensible, or Santorian, in honour of the great Venetian philosopher, Santorio, who made the earliest scientific experiments upon this secretion, and who is also renowned for having been the first to make use of the thermometer in diseases, and for having invented an instrument for measuring the force of the pulse. The influence which the nervous system exercises over the cutaneous secretion is notorious; and an intelligible explanation of this influence is afforded by the fact that the functional activity of the glandular apparatus of the skin is dependent upon the condition of the sub-cutaneous blood-vessels, and these blood-vessels, in common with all the vascular apparatus of the body, are subject to the control of the vaso-motor nerves derived from the sympathetic system. The existence of this influence has been established by direct experiment, as well as inferred from clinical observation. The sympathetic nerve of one side in the neck of a horse being cut, the temperature of that side of the head rises; it becomes injected with blood, and perspiration is poured out abundantly over the surface thus affected. On irritating the end of the cut nerve which is in connexion with the vessels, the muscular elements in the walls of the latter, to which the nerve is distributed, contract, the congestion ceases, and with it the perspiration.

Excessive sweating may be partial and localized to a small area, or may be a general pouring forth from the whole cutaneous

surface. It has long been observed that the action of the sudoriparous glands may be abruptly limited to a particular tract of skin. The ancient physicians, who marked with close attention every variation in the secretion of the skin, and formed their prognoses accordingly, attached, not without reason, great importance to the *sudores non per totum corpus aequales*; the frequency with which they must have watched the droplets of sweat oozing out upon the foreheads of dying persons may have helped to form the unfavourable opinion which they entertained about local sweatings. One of the forms of local sweatings most commonly met with is that of the palms of the hands. It frequently happens that females under twenty years of age, without any tendency to general perspiration, perspire from the palms of the hands, or from the palm of one hand only (generally the right), both in summer and winter, to such a degree as to saturate with moisture everything they handle; the perspiration soon stains and soaks through gloves, soils work, and keeps their hands in such a perpetual slop that the distress arising from an at first sight trivial affection, is in many ways very considerable. I have known this affection to succeed to a typhoid fever, and again to be evidently an inherited peculiarity; in other instances the causes are more obscure. For the relief of sweatings of the hands Dr. Druitt<sup>a</sup> has suggested the thorough application of the hottest water that can be borne without pain to the offending parts until they are red hot, and tingling as if scalded. This treatment sometimes appears to aggravate the affection. Hebra<sup>b</sup> recommends the frequent local use of a solution containing one drachm of tannic acid mixed in six ounces of alcohol; this liquid should be rubbed into the part several times a day, and the skin must not be wiped afterwards; a little powdered asbestos is to be sprinkled on it while still wet, and with this the part is to be rubbed till it is dry. From statistics he finds that this complaint affects the young as well as the old, both males and females, rich and poor, those who are of cleanly habits and those who are dirty, persons who are in good health and those who suffer from other maladies. There are anatomical facts which tend to remove surprise at the frequency of excessive sweating in the palm of the hand or sole of the foot, the immense number of sudoriparous glands in these situations having been carefully ascertained. According to Krause, there are on a square inch of skin in the

<sup>a</sup> Medical Times and Gazette, March 4, 1865, p. 222.

<sup>b</sup> Dis. of Skin, Syd. Soc., Vol. i., p. 87.



former situation 2,736 glands, and on the same space in the latter 2,685; while on the back of the hand and foot, the anterior aspect of the trunk and neck, on the forehead and forearm, the number is from 924 to 1,090, and upon the dorsal surface of the trunk, on the cheeks, and the first two segments of the lower extremities, from 400 to 500. Graefe<sup>a</sup> has observed several cases of local sweating of the eyelid—a part richly supplied with sudoriparous glands; a secondary conjunctivitis arose from the irritation of the sweat flowing in at the angles of the eye, and to superficial observation the latter appeared the primary ailment; examination with a lens, when the lid had been wiped dry, showed that the fluid issued from many minute punctiform apertures in the skin and gradually collected into drops. Under the title of parotidean ephidrosis Rouyer<sup>b</sup> has described the occurrence of a discharge of fluid from the skin of the face in the neighbourhood of the parotid region; from the fact of this fluid appearing during mastication, and from the vicinity of the chief salivary gland, it was supposed by some to be saliva; however, the absence of the chemical characters of the saliva and of any sensible orifice in the skin through which it could be discharged were against this explanation. The physiologist, P. Bérard, relates the case of his own father as an instance of local sweating of the cheek while eating. Brown-Séquard regards such cases as examples of an increase of the ordinary secretion of the sweat glands of the face which not unfrequently accompanies gustation and mastication, produced by reflex action when the nerves of taste are subjected to a considerable stimulation, and refers to the phenomenon as observed and recorded in his own person.<sup>c</sup> In his own case he found that the phenomenon was not connected alone or even chiefly with movement of the muscles subcutaneous in that region, for food of little savour and long masticated did not give rise to it, while a sapid body, very salt, very sweet, or very spicy, held in the mouth without mastication did so. Barthéz has related a case in which one side of the face sweated abundantly on the application of a little salt to the same side of the tongue.

There is reason to believe that the appearance of an unusual amount of water upon a limited area of the skin is connected with a disturbance of the vascular apparatus immediately subjacent to

<sup>a</sup> Graefe Archiv., Band. iv., p. 254.

<sup>b</sup> Journal de la Physiologie, 1859, p. 447.

<sup>c</sup> Comptes Rendus de la Soc. de Biol., 1849.



the affected part, and that this disturbance consists in an undue relaxation of the muscular elements of the subcutaneous arteries in obedience to a stimulus much more frequently reflected from elsewhere than applied directly. The greater vascularity and the more richly innervated condition of the skin of the face make it, perhaps, a better field of observation in such disturbances than any other part of the body. The laws of reflex secretions seem to be the same as those of reflex movements, and the sympathetic system appears to receive and reflect impressions in the same manner, to a certain degree, as the cerebro-spinal does, changes in temperature, nutrition, and secretion appearing as the results of reflex action in the former case against muscular contraction in the latter. Thus, in the case of a man<sup>a</sup> whose œsophagus was divided, the injection of a meal of broth into the stomach was followed by the secretion of from six to eight ounces of saliva. Many of the cases of burning heat and flushings of one or both sides of the head and face may be intelligibly accounted for by reflex relaxation of the subdivisions of the carotid arteries distinctly traceable to the pressure of a loaded colon upon the abdominal sympathetic; unilateral sweating may even indicate whether the intestinal obstruction predominates in the cecum or sigmoid flexure of the colon, since Callenfels' experiments show that irritation of one sympathetic influences the blood-vessels only on the one side of the brain and head; the irritation may even be unperceived or uncomplained of, as it has been well ascertained that an unfelt irritation may give rise to reflex phenomena, affecting nerves of motion, sensation, or secretion. Should the hyperemia resulting from paralysis of the vaso-motor nerves extend to the intra-cranial arteries, epileptic convulsions may supervene—an occurrence which consists well with the views of Van der Kolk—and the three phenomena may co-exist—fecal tumour, excessive local sweating, epileptiform convulsions. The case of a boy is recorded by Dr. Anstie,<sup>b</sup> in whom the whole left side of the face and the left ear were flushed deep red, the surface was pungently hot, and bedewed with a copious sweat, the heat and sweating were found to extend over the whole left half of the head, and to cease abruptly at the median line; an epileptic fit, which lasted twenty minutes, occurred soon after he had examined him. At the end of an hour or two the unilateral flushing and perspiration still continued; a brisk purgative enema was administered, and a large quantity of

<sup>a</sup> Edinb. Med. and Surg. Jour., Vol. xvi., p. 355.

<sup>b</sup> Stimulants and Narcotics, p. 96.

scybalous feces removed; this was almost immediately followed by the entire disappearance of the local heat and sweating: previous convulsive attacks had been similarly preceded by excessive sweating of the left side of the face. Another case has been reported<sup>a</sup> in which the first epileptiform seizure in a man apparently quite healthy was preceded by a sudden sensation of burning in his left arm—so intense that, as he had just been feeding an engine fire, he looked in his sleeve, feeling certain that it had caught fire. At the end of about an hour the sensation “fled up the body,” affecting the left side of the face and trunk, and also the lower extremity of the same side, and a profuse perspiration broke out over all the hot parts; slight convulsions and coma followed; he subsequently experienced frequent recurrence of the heat and perspiration without convulsive attacks—confined on every occasion to the left limbs and left side of the face and body; the perspiration which accompanied the heat was most profuse; the moisture poured off him; the attacks occurred often three or four times a day for several days in succession, and generally continued for about five minutes at a time. Dr. Gairdner<sup>b</sup> has in two cases of intra-thoracic aneurism observed the phenomenon of strictly unilateral sweating stopping short quite abruptly at the middle line, and occurring (in one case almost constantly) over the face and scalp of the affected side; in each of these cases the pupil at the same side was contracted, another evidence of a paralysing amount of pressure applied to the sympathetic nerve, since a moderate degree of stimulus or pressure causes dilatation of the pupil, as is seen so often in the widely open pupil resulting from the irritation of intestinal worms, which disappears upon the expulsion of the cause.

The observation of the condition of the glandular apparatus of the skin over paralysed parts is full of interest; there is sometimes an accurately marked boundary line between the sound and the paralysed parts, the skin over the sound parts being covered with perspiration, while that of the paralysed parts is dry. In a case of complete paraplegia, from apoplexy of the spinal cord, observed by Dr. Levier, of Florence,<sup>c</sup> it was repeatedly observed that the paralysed parts remained quite dry, while the upper half of the body was bathed in sweat; he considers the suspension of perspiration in the paralysed parts recorded in the case quoted to be a

<sup>a</sup> *Med. Times and Gazette*, April 7, 1866, p. 367.

<sup>b</sup> *Clinical Medicine*, p. 557.

<sup>c</sup> *L'Imparziale*, No. 11, June 1, 1865.

symptom hitherto without parallel in his numerous observations of spinal paraplegia. Mr. Alexander Shaw has reported a case of paraplegia<sup>a</sup> from fractured spine, in which, as the patient approached his end, he several times had profuse perspirations; on these occasions it was remarked that while the skin of the whole upper sound part of his body was covered with drops of moisture, which thoroughly drenched his shirt and the hair of his head, the lower extremities were quite dry. In connexion with such cases the observation by Sir H. Marsh<sup>b</sup> of unilateral sweating of the sound side of the chest in empyema is of great value, from the relations believed to exist between acute purulent effusions into the pleura and intercostal paralysis. During the progress of a case of empyema following acute pleurisy, when profuse partial night-sweats set in, the perspiration completely bedewed the chest upon the sound side, while the other side, distended and œdematous, remained perfectly dry. Tanquerel des Planches, who has examined with great accuracy the cutaneous secretion in lead paralysis, says that in this affection it is not suppressed, but that, on the contrary, there is an abundant tenacious sweat secreted on the paralysed parts.

Among the more remarkable instances of general and excessive, that is, visible sweating, are the colliquative perspirations attending the venereal, cancerous, or phthisical crases, the drenching sweats of over lactation, of the terminal stage of the normal ague paroxysm, the sweatings or crisis, of rheumatic fever, and those occurring about the time the ovaries become effete. The exhausting effects of those obviously unnatural cutaneous discharges have, as is just and right, caused more anxious search to be made for any means of moderating or controlling them than of explaining their etiology. It appears as if the causes of general profuse sweating might be referable to two causes (perhaps to but really one), to the circulation of a poisonous blood and to depression of the vital powers, that is, to diminished energy of the sympathetic system. The conditions of the temperature, pulse, and skin at the termination of an ague paroxysm points to a paralysed and dilated condition of the arteries; the hepatic, splenic, or thyroïdal enlargements may result from excessive flow of blood to these parts from the same cause. The earlier stage of poisoning by malaria appears very different from the later one, the cold, wrinkled, shivering surface contrasting with the hot, flushed, sweating one; but in other poisons of vegetable origin, as in

<sup>a</sup> Syst. Surg., Vol. ii., p. 230.

<sup>b</sup> *Dubl. Med. Press*, Jan. 2, 1861, p. 2.



opium, the earlier effects are stimulant and very different from the later ones, and the phenomena observed in the first stage correspond to those which attend experimental stimulation of the sympathetic nerve. Cruveilhier<sup>a</sup> remarks that of the three stages of a paroxysm of intermittent fever that of sweating is the most constant; some attacks may be without the cold stage, others without the hot stage; but it is very rarely that the sweating stage is absent; he has recognized an irregular ague by the nightly recurrence of profuse sweating amenable to quinine. There is reason to believe that the perspirations of rheumatic fever, although they may seriously compromise the comfort of the patient, and he may be sensible of but little relief from pain by them, yet serve to remove from the body much of the *materies morbi* which is the exciting cause of the symptoms. In phthisis profuse perspiration, although generally a symptom of very advanced disease, may be present at a period when both auscultation and percussion give only dubious information as to the condition of the lung, and in such case it will be found generally to be disseminated tubercle, from which the individual is suffering. Cruveilhier<sup>b</sup> records a remarkable case of this kind which, as far as physical diagnosis was concerned, remained undetermined up to the person's death, but which was marked from the very first by excessive night sweats, accompanied with rapid emaciation and profound debility. Regarding the colliquative sweating of phthisis as a consequence of vaso-motor paralysis resulting from constitutional exhaustion, it is not difficult to appreciate the value, although often but temporary, of nutritious diet, and such medicines as cod-liver oil. In support of the view that phthisical sweatings are the natural result of the depressed condition of the vascular system of the patient, are the observations that these perspirations usually come on when the person falls asleep, and more frequently during night sleep than day sleep; it has also been shown by Dr. Edward Smith<sup>c</sup> that in cases of phthisis the subsidence of the rate of pulsation during the night is much greater than in health, and that the greater difference between the day and night rate in phthisis than in health is less due to the increased elevation of the pulse during the day than to the great subsidence of it through the night. The usual time for the occurrence of perspiration in typhoid fever is in the night, the skin

<sup>a</sup> *Traité d'Anat. Path. gen.*, Vol. iv., p. 100.

<sup>b</sup> *Traité d'Anat. Path. gen.*, Vol. iv., p. 99.

<sup>c</sup> *Cyclical Changes. Health and Disease*, p. 75.



in the day time being usually dry; and according to Traube's researches, the critical evacuations in typhus fever, and among them perspiration, are always preceded by a considerable fall in the pulse. In many other cases depression of the heart's action is a well-known cause of perspiration—for example, those attending the syncopal state, which the inexperienced smoker falls into, the sweating which attends sea sickness, extreme purgation, the exhibition of tartarized antimony, and the effects of terror. The remedies which prove serviceable in the majority of cases of excessive general sweating are such as tend to remove depression of the heart's action and act as tonics on the vaso-motor nerves. The difference in gravity of import between local and general sweatings appears to be very great, because, although a partial sweating may excite more alarm and closer attention from the greater rarity of its occurrence, yet it does not appear that it is in most cases indicative of by any means as serious nervous disturbance as are the general sweatings.

ART. XIV.—*Thoracic Aneurism and Dementia.* By WILLIAM MOORE, M.D., Dub. Univ.; Fellow and Examiner in the "Practice of Medicine," King and Queen's College of Physicians; Physician to Mercer's Hospital; Physician-in-Ordinary to Sir P. Dun's Hospital; Lecturer on "Practice of Medicine" and on Clinical Medicine, &c.

THORACIC ANEURISM may be said to be relatively a rare disease. Now, among the cases of this affection which I have had an opportunity of observing for some years, I have seen *dementia* a prominent symptom in three of them. This phenomenon struck me as remarkable, and therefore I thought a detail of these three instances might not prove devoid of interest, as going to show that mental diseases are more intimately associated with general pathological changes than some time ago they were believed to be, and that they may depend on comparatively remote, and frequently very obscure, exciting causes, the diagnosis of which must materially affect our prognosis and treatment.

CASE I.—*Mania, with General Incoherence; Aneurism of Transverse Portion of the Thoracic Aorta.*

Philip S., aged forty-seven, was admitted into Mercer's Hospital on the 1st of May, 1863. He had been a labourer for the past few years. About four years before his admission he was seized with a

hard, dry cough, difficulty of breathing, and pain in the right side; and about this date he spat some black blood, which reappeared from time to time. He complained of pain down the right arm after using it, the pain about the articulation of the humerus being very severe. For about a year previous to his admission he suffered from difficulty in swallowing, and his voice was subdued and hoarse. On making him take a deep inspiration the expansion of the chest was not equable, the right scapula being more movable than the left. There was absence of respiration over this side, except under the scapula, where a faint respiratory murmur was audible; respiration was audible over the right side. The heart's action was irregular; the pulse in the right wrist stronger than that in the left. The veins over the top of the chest generally were unduly prominent; there was contraction of both pupils, especially of the right. I made the diagnosis of thoracic aneurism mainly from the character of the hemoptysis and the absence of respiration in the left lung, coupled with dysphagia. About a month after leaving hospital this patient was admitted into the Richmond Lunatic Asylum, where he died the day after his admission.

Dr. Banks was kind enough to show me the pathological conditions, which consisted of an aneurism, slightly pyriform in shape, which engaged the posterior portion of the ascending aorta and transverse portion of the aortic arch; the heart was fatty, its valves intact; the brain was not examined. Now, whilst this patient was under my observation, his manner at times was so excitable and unsteady as to induce me to inquire carefully into his antecedents, when I learned he had been an inmate of a lunatic asylum some years previously, and afterwards was admitted into the Richmond Lunatic Asylum, as Dr. Lalor has told me, labouring under "mania, with delusions and general incoherence."

From the situation of the aneurism in this case, it might be reasonable to infer that the carotid supply was interfered with, and, in addition, that reflected nervous irritation may have played an important part in the production of the psychological phenomena present; but as the brain was not examined I am not disposed to indulge in these hypotheses, but to confine myself to what we did find, viz., an intra-thoracic aneurism, associated with dementia.

*CASE II.—Difficulty of Speech; Imperfection of Mental Powers; Loss of Memory; Paralysis of Motion and Sensation.*

*PATHOLOGY—Large Thoracic Aneurism, with left Carotid Artery*

*impervious from its origin to its bifurcation; atrophy of left hemisphere of the Brain.*—Andrew F., aged forty-four, by trade a shoemaker, was admitted into Mercer's Hospital suffering from neuralgic pains over the top of the sternum, from a troublesome cough and dysphagia. He complained of tightness of the skin of the left half of the face, of tingling sensations of the same half, and, at times, of intense heat of both ears. There was ptosis of the left eyelid and drooping of the left angle of the mouth. The left pupil was more contracted than the right, and a herpetic eruption covered the left half of the upper lip and chin, and other patches of herpes were present over the top of the chest and shoulders. The superficial veins over the upper part of the chest were remarkable, and a prominent tumour extended from the right clavicular articulation across the sternum for more than an inch under the left clavicle, over which tumour a second centre of pulsation could be felt. The left radial pulse was indistinct, and the respiration was especially feeble over the left lung. In the month of May previous to admission he had an attack of epistaxis, which gave him relief, and in October and November it returned, at the end of which the semi-ptosis of the left lid, the deformity of the mouth, the herpetic eruption, ringing laryngeal cough, partial aphonia, and visible tumour, were present; but the contraction of the pupil, the tightness of the muscles of the face, with increased heat of ears, had disappeared to a great extent.

<sup>a</sup> On the 16th of March, 1864, this patient was admitted into the Whitworth Hospital under the care of Dr. Banks, four days previous to which he was seized with severe headache and giddiness, his articulation having become so imperfect that he could scarcely be understood. On admission there was still some difficulty of articulation, and his mental powers were evidently very imperfect; his memory was quite gone. On being asked his age he stated that he was twenty-four, his real age being forty-five or forty-six. There was some slight paralysis of the right side of the body and also of the right side of the face; however, he was able to walk into hospital, but on the second or third day after admission he completely lost all motion of the right side, and there was manifest anesthesia of the same.

On examining his chest a tumour was found, small in size, but of extreme hardness; it was prominent and occupied the upper part of the sternum, and extended to the right sterno-clavicular articula-



tion. From the 16th March till 23rd May, when he left the hospital, Dr. Banks tells us that, so far as the tumour was concerned, there was no change, but the paralytic symptoms gradually disappeared; he recovered the motion of the right aide, and his memory returned.

It would be needless to follow the various phases this case presented till it proved fatal, which occurrence took place on the 28th March, 1864, when a *post mortem* examination revealed the following pathological changes:—A spherical-shaped tumour was found to spring from the upper part of the transverse portion of the aorta; it measured sixteen inches in circumference. Neither the ascending or descending aorta seemed to be altered in their calibre. The tumour separated the vessels at each side which arise from the aortic arch to a great extent. The trachea was completely flattened and arched so as, over the most projecting part of the tumour, to have become convex posteriorly. There was so much pressure exercised on the trachea that it was strange the patient did not suffer more and earlier from dyspnea. The recurrent laryngeal pneumogastric and phrenic nerves did not seem to have been pressed upon materially, and the heart was small and healthy, with the exception of some calcareous deposit about the semi-lunar valves, which did not seem to have interfered with their functions.

On examining the cranial cavity the arachnoid was slightly thickened and opaque, and a slight amount of sub-arachnoid effusion was found; but what was particularly interesting, the left hemisphere of the brain was smaller than the right, and a small depression or cicatrix existed on its surface on the inner and anterior part of the anterior lobe. Small atheromatous deposits could be seen on both internal carotids, and the left carotid was impervious from its origin in the aneurism to its bifurcation.

Here was a case of thoracic aneurism, in which difficulty of articulation, imperfection of mental powers, with total loss of memory, and paralysis of motion and sensation were associated with an impervious condition of the left carotid artery from its origin to its bifurcation, and an atrophic condition of the left hemisphere of the brain. Now <sup>a</sup> Greisinger tells us that an important lesion, and one which is frequently met with in the insane, is atrophy of the brain, sometimes of the convolutions, sometimes of the entire cerebral mass; and, in many instances, insanity is a symptom of a cerebral disease, of which we do not yet know the minute anatomical

<sup>a</sup> Sydenham Society, 1867.



changes of the first stage, but which, at a later period, leads to atrophy of the brain; whilst changes of nutrition, and disorder of the circulation within the cranium appear to play an important part in the origin of insanity.

With respect to the symptoms produced by unilateral atrophy of the brain.\* Schroeder Van Der Kolk tells us they manifest themselves partly in the more or less defective exercise of the mental powers. That in atrophy of the one-half of the cerebrum, the psychical powers should be blunted or paralysed might be, perhaps, assumed, as generally true, and, in fact, such atrophy is most usually met with in adults.

Hence when embolism of the cerebral vessels or obstruction of the carotids or their tributaries, with consequent diminished nutrition of the brain occur, we may expect giddiness, loss of consciousness, loss of speech, loss of memory, and disorders of the intellect generally, with lesions of motion and sensation, as the above case exemplified; these phenomena were still further well shown in the following case of thoracic aneurism, which, through the kindness of Dr. Jennings, I had frequent opportunities of observing during the past six months, and to whom I am indebted for the following history.

CASE III.—*Complete Temporary Insensibility—Dementia—Delirium—Fugitive Paralysis.*

PATHOLOGY.—*Enormous Thoracic Aneurism—Empty Carotids—General Atrophy of the Brain.* Matthew E——, aged forty-four, of stout and muscular build, was admitted into the South Dublin Union on the 29th June, 1867. He seemed in perfect health, and retired to bed on the night of the 1st July without having made the slightest complaint; he was found on the following morning in a state of complete insensibility. When seen by Dr. Jennings, about 11 a.m., he was lying on his back, silent and motionless, with closed eyelids and compressed lips, the temperature of his body being perfectly natural, and his respiration tranquil and free from the slightest stridor. When his eyelids were separated the pupils were natural in size, but completely unaffected by the admission of light.

This state of tranquil immobility, however, was reported by the attendants to have been occasionally interrupted, since his admission into hospital, by attacks of vomiting and restlessness, his struggles

\* "Atrophy of the Left Hemisphere of Brain."—Sydenham Society, 1861.

being restrained with much difficulty. The heart's action over the entire precordium was found to be rapid, the pulses at both wrists strictly similar in character, and visible pulsations were present in the carotid, subclavian, and humeral arteries.

A conical tumour, several inches in height, and having a base of considerable extent, with double heaving impulse, was seen situated over the upper part of the sternum, whilst a second centre of pulsation, though much more faint and limited, was observed below the left nipple. In neither of these situations could any bruit be detected.

When loudly addressed by name he languidly opened his eyes, but made no attempt at reply; however, when shaken somewhat roughly by one of the bystanders, he raised his head from the pillow. On the following morning the insensibility was found to be much less profound; he seemed semi-conscious, but still incapable of giving intelligible replies. When the cup was held to his lips he drank freely, and his respiration was tranquil and unembarrassed. The throbbing in the tumour was not by any means so distinct as on the day previous. The expansion, percussion, and respiration of both sides, posteriorly, were normal.

On the morning of the 5th July, Dr. Jennings found the right arm completely paralysed; when roused by being shaken or loudly called by name, he would start as if from sleep, stating his age, name, trade, as the case might be. One or other of these replies he invariably gave to whatever question was addressed to him.

The paralysis of the right arm, was said by his daughter, who happened to be present, to have attacked him for the first time about four months previously, when he had been carried home insensible, and to have disappeared after the lapse of three days. She further stated that the growth of the tumour, which first appeared ten years ago, was occasionally attended with paroxysms of pain, which lasted for hours, and which were so agonizing as to well-nigh deprive him of his reason.

The statement as to the fugitive nature of the paralysis was verified on the present occasion, as on the following morning it had completely disappeared, although all the other symptoms continued unchanged for several days.

On the 14th July a marked improvement was observed in his manner; having been dull and heavy, he now became lively and vivacious, when spoken to; he replied promptly, although his answers had no connexion with the question asked. He was

extremely restless and required to be confined. He remained much in this state for a month, his intelligence gradually coming about, till at length he drew Dr. Jennings's attention to the eyes of the patient in the next bed, which he remarked were "very sore," such being the case. During the months of September and October no very unusual symptoms were present; on the 2nd November the left arm was found to be paralysed; however, after few days he recovered the use of it.

All this time the tumour was increasing, and early in December he had again become dull and idiotic. On the 10th of this month he was suddenly seized with furious delirium, after the partial subsidence of which, he complained of great pain in the aneurism, which he guarded with both hands; when the violence completely disappeared, which it did after the lapse of a few days, he became more rational than he had been since his admission into hospital.

On the 16th February last, Dr. Jennings first observed a difference in the radial pulses, the left being rapid and indistinct. On this day he was convulsed, and the tumour was beginning to discolour and slough; at one point there was very slight oozing, which was soon checked by the application of sesqui-chloride of iron; from this day he continued more or less insensible till the 26th February, when he died from apparent asthenia.

Dr. Jennings, in making the *post mortem* examination, was assisted by Dr. Purser. On removing the calvarium the brain was seen not nearly to fill the membranes, which in several places lay in folds over it; in fact, it was generally atrophied.

A considerable quantity of fluid was found in the sub-arachnoid spaces, as also in the ventricles. The arachnoid membrane was thickened, pulpy, and gelatinous. The upper and outer part of both hemispheres were of a dirty yellowish colour, and the convolutions small and depressed. It would be difficult to define the actual condition of the brain substance; it might be termed "brittle" in consistence.

No emboli were found in any of the vessels, but the carotids and the larger arteries of the brain were well nigh empty, and large coagula occupied both pulmonary arteries. The heart was in a state of fatty degeneration, all its cavities were enlarged, the valves seemed intact. On slitting open the aorta from behind, the aneurism was seen to spring from the front of the ascending portion of the arch, immediately above the semi-lunar valves; the aperture of communication with the vessel being circular in outline and three



inches in diameter, and its circumference thickened, rounded and prominent. The sac was filled partly by coagula of blood, and partly by masses of fibrin. The coats of the aorta were occupied generally by atheromatous and semi-osseous depositions.

In this case we had an unusually large thoracic aneurism and chronic arteritis combining to diminish the calibre of the cerebral vessels; in fact, giving rise to an empty condition of the carotids with consequent atrophy of the brain, the dementia and paralysis pointing to disorganization as well of the grey substance as of the ganglionic centres.

My object in adducing these cases is to show that "mental diseases," so called, may be entailed by comparatively remote physical conditions, and hence arises the importance of taking the widest range in approaching the consideration of these affections. We are familiar with mental phenomena termed "reflex," when they are found to co-exist with uterine, genito-urinary or other abdominal irritations, but the changes which these causes bring about in the nutrition of the brain are difficult to define. Now, whilst our knowledge of psychology as yet is not so far advanced as to enable us to specify in all cases from certain symptoms, certain pathological changes, still if in a case of dementia we can detect a latent aneurism or intra-thoracic tumour which, from its situation, it is to be presumed, would cause obstruction of the cerebral supply and consequent atrophy of the brain, it is needless to add, how materially such a discovery would affect the prognosis and treatment of such a case; experience having shown us that dementia attendant on a chronic atrophic condition of the brain is of most unfavourable prognosis, whilst insanity in more acute and subacute forms, where no such positive evidence of persistent diminished nutrition of the brain is present, may be regarded as relatively hopeful and capable of cure.

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ART. XV.—*On the Management of Sleeplessness in the Acute Affections of Children.* By HENRY KENNEDY, A.B., M.B.; one of the Physicians of the Cork-street Hospital, and attached to Sir P. Dun's Hospital.

IN the following remarks, which I promise will be very brief, I would make some observations on the raving and sleeplessness so often attendant on the acute diseases of children. I am induced



to take up this point, because it would seem, as far as I am aware, to have been little noticed by authors. I believe it, however, to be one of no little consequence, and for which we should always be prepared. I have thought, indeed I am sure, that sleeplessness in the acute diseases of childhood is, *cæteris paribus*, a much more serious symptom than in the adult. The result of many years' observation strongly confirms this. Nor need we wonder at it. Sleep is of much more consequence in the young than in those more advanced in life, and the loss of it is consequently more serious in its results. The frame cannot yet bear, in the same proportion, the deprivation of such an important function as sleep; and when to this we add the fever present, the child suffers accordingly. Here, however, as in the adult, we may observe the great differences which exist. Some will bear the loss a great deal better than others; and one child will be more cut up in three days than another in a week. It need scarcely be added that the more rapidly they suffer from the loss of sleep or flesh the more serious is the case. In the same category, too, I would notice the fact of the flesh getting soft and flabby; and it may often be observed that this state will ensue without a corresponding loss of flesh. This is a point worthy of remembrance.

Before going further it may be well to state that the remarks about to be made must be more or less general in their character, and will apply chiefly to the acute fevers of childhood, such as typhus, with its several types, measles, scarlatina, smallpox, &c., I would further, too, state that many points connected with the raving of fever and sleeplessness are purposely omitted, as they are well known, and scarcely differ from the means used in adult life.

Now, when we are called to treat a case of fever in a child where the brain is greatly excited night after night, time becomes a very important element as to how and when we should act. This much I may say, we can use means sooner—I mean with both safety and advantage—than in the adult. In the latter, every one who has had to do with fever knows how difficult a matter it frequently is to induce sleep; nay more, that at times our best efforts fail to accomplish it; and matters may even be made worse. The late Dr. Graves, as all know, wrote largely and ably on this very point. In children, however, success is much more certain. It would seem as if we had little to contend against but an excited nervous system, and the means employed are crowned with success. The nervous system at this age we know is in a wonderful state of

activity, and powerfully modifies all the functions of life; and I repeat that successful efforts are much more frequent in children than adults. There is, however, another reason, as I believe, why this should be so. In the young all the functions are yet in their integrity, and medicines act with a precision which we may look for in vain in more advanced life. It has often appeared to me that that most difficult part of medicine, the study of therapeutics, could, with great advantage, be carried out on children; and were this the place good reasons could, I think, be advanced for it. But as I must go on I shall only say that no reasonable opportunity of carrying out this idea should be allowed to escape us. With these remarks I shall now call attention to a few points in connexion with the inducing of sleep in the acute diseases of children.

And first of food. When the proper stage arrives, say after the first week—and I am now speaking of the common fever of children—much may be done by this means to induce the child to pass a quiet night. It will always be well, then, to act in keeping with the general habits of the child; and so the time of giving anything becomes very important. A little warmed milk will often be found to answer the end in view; or, as the case may be, a little bread and milk. I say specially a little, for if it be overdone—and in these days of overfeeding such may occur—the object will defeat itself. Another and probably more certain means of bringing on sleep is the administration of some stimulant, such as a few drops of brandy or some wine. Speaking generally of the fevers of childhood wine is not required. Hence, when given with a special purpose in view, it acts with a very specific effect. I have the impression, too, that when given warm, as in *negus*, it produces the best results, and the narcotic effect of it is that for which we should look. It is not possible here to state the amount which ought to be given. The requirements of each case must regulate this. But from half an ounce to one ounce of wine may be said to be the dose for a child of six to eight years of age.

And now I would say a few words on the use of anodynes, which some experience enables me to add may be ordered with very great advantage to children—far more generally, I believe, than is commonly supposed. The medicine I use is the tincture of *hyosciamus*, in the dose of a drachm, which, notwithstanding what has been written against its having any anodyne effects, I believe to be most useful. It has been given in too many instances with good

effect to leave now even a shadow of doubt on my mind. It has the great advantage, too, of not disagreeing, and may be given, in the dose stated, even to children of not more than four years of age. To older children I have often given two drachms at once, but only after the ordinary dose had failed, or had been but partially useful. In the acute diseases of children the use of opiates demands even more caution than in adults. I need not remind this meeting of the extraordinary susceptibility of infants to opium; and it would almost seem as if, when they were more of children—that is, from five to ten years old—the same susceptibility, in a great degree, remained, allowance, of course, being made for the difference of years. I am speaking now of the internal use of the medicine; there is, however, a mode of using it to which I am very partial, and has so often been followed by satisfactory results that I believe it to be worthy of special notice—I mean the external use of opium, either by wetting a bit of lint with laudanum, and laying it on the abdomen, or better still, by pouring some laudanum on the surface of a warm poultice, and so applying it. These are means which are ever safe, and have the marked advantage of being easily applied.<sup>a</sup>

The last point in connexion with my subject which I would notice here is the position of the patient. I know not whether I am addressing any one who is familiar with this plan, but it is one which I have for several years past put in force, and often with very marked results. I had read in some book that sleep was often prevented from the position of the person not being in the right direction, and that to ensure the soundest sleep the head should lie to the north; and strange as this idea may at first sight appear, it has more in it than might be supposed. There are known to be great electrical currents always coursing in one direction round the globe; and there can be little doubt, in my own mind there is none, that our nervous systems are in some mysterious way connected with this universal agent, as it may be called, electricity. I am probably addressing some who are quite conscious of peculiar feelings on the approach of a thunder storm. I have known many such. At any rate, whatever the explanation be, when I read what I have stated the idea at once struck me that it might be turned to account in the treatment of disease, and very shortly

<sup>a</sup> It must be understood that till a child reaches five years of age, even the external use of opium must be tried with the greatest caution. An infant could readily be poisoned by this plan.



afterwards the following case occurred:—A young lady, then about eleven years old, was seized with measles in a severe form. There was very high fever, restlessness, and raving, with a total absence of sleep, and this state went on longer than the natural course of the disorder seemed to account for. In fact, the fever did not come down with the decline of the eruption. Anodynes were now given, but without any marked benefit. I then thought of what I had read, and directed that the patient's position should be altered. She had been lying east and west, and she was now put north and south, and with a very striking result, as on the very first night she got sleep; and though the fever, evidently like the secondary fever of small pox, ran on some days longer, she did not suffer again from loss of rest. I must say, at the time this case occurred, I was quite unprepared for the result, and set it down more to chance than anything else. The fact, however, was enough in itself to draw my attention to the subject, and since then I have often put the same plan in force, and now cannot doubt that it is very frequently successful—I say frequently, for all are not equally susceptible. Nor indeed can this be expected. It applies too, likewise to adults; and my friend Dr. Grimshaw has seen it put in force in some cases of fever in the Cork-street Hospital, and with marked benefit. I may remark, however, that it is not so striking in its effects on the poorer as amongst the richer classes of society; and this seems to me just what might be expected, for it cannot be doubted that the nervous system in the middle and upper ranks is always in a much more sensitive state than with their poorer brethren. Hence it is that in fever hospitals sleeplessness is rare when compared with what occurs amongst the higher classes. It is worth noting that even in healthy persons sleep will often be absent, or of a broken kind from the cause of which I am speaking. It is very common to hear people saying they can never sleep in a strange bed. Now, though many causes may conspire to this, I cannot doubt that amongst these ought to be placed the one to which your attention is being drawn. One of the latest cases in which the means now brought forward were used was that of a little girl I saw with my friend Dr. Denham within the last month. Dr. Wilson, of Coleraine-street, also saw the case. It was one of severe gastric fever, with the brain very much engaged, and, for a few days, the symptoms were very like those which so often usher in hydrocephalus. In this case two of the means here spoken of were adopted. An



anodyne poultice was applied to the abdomen, and the child's position was altered, and with a result which was very striking, for by the second day all danger had passed away, and the very first night of its adoption the child slept. I mention this case because it was seen by others.

In concluding these brief remarks I would wish to add that they have not been advanced as anything at all new. My wish is more to speak of a principle which I believe to be of much importance in the treatment of the acute affections of children. Thus in scarlatina it will, I think, be found that anodynes should form a necessary part of the treatment. They have appeared to be very suitable to those cases where there has been such raving as, if allowed to go on, must destroy life. And again, in those cases of fever where the brain is greatly excited, the same plan will be found very useful. It is so even when the fever is of the typhus type, being marked by the presence of spots, and of which a number of examples have been given in another place. But it is more especially suitable for the type of fever known as gastric, which is so common in children, and so apt to prove tedious. I cannot doubt I have seen many instances where this disease has been shortened by the adoption of the means brought under notice this evening.

ART. XVI.—*Reports in Operative Surgery, from the County Down Infirmary.* By JOHN K. MACONCHY, M.B.; F.R.C.S.I.; Surgeon to the County Down Infirmary.

I.—EXCISION OF THE KNEE-JOINT.

II.—OBSERVATIONS ON THE USE OF CARBOLIC ACID AS A SURGICAL DRESSING.

*Excision of the Knee-joint.*—Eugenius Miskeley, farm labourer, admitted to the Co. Down Infirmary 6th November, 1867.

The right knee is swollen, being three and a half inches more in circumference than the left; the swelling involves about the lower fourth of the thigh, and upper fifth of the leg; there are several cicatrices in the vicinity of the joint, and three open sinuses discharging pus, but not profusely; in none of them does the probe impinge on denuded bone; the feeling given to the fingers by the swelling is that of either elasticity or deep fluctuation; pressure in

the immediate vicinity of the articulation is painful, but can be borne pretty well at a little distance; the limb is kept in the extended position, but is capable of being slightly flexed, the action causing considerable pain; the patella is movable; he complains of constant pain and occasional starts.

His complexion is fair and clear; temperament nervous; he is pale and thin; pulse over 100, and variable; he is subject to perspirations; the thoracic viscera are healthy; appetite moderate; urine normal.

*History.*—Nine years ago, after great exertion in pursuit of a runaway horse and cart, his knee suddenly swelled, his attention being first attracted to it by finding the leg of his trowsers distended; it gave him no pain at the time, merely feeling stiff. For two years he did little for it, though the swelling never subsided; during that time he continued to work, suffering only occasional attacks of pain. Since then he has suffered much, and has been frequently treated for it; he gives the account of many variations in his state and sufferings; but the disease has steadily progressed; for some time previous to admission, sleepless nights and the perspirations of hectic fever have rendered him miserable.

His object in coming to the infirmary is to have the diseased parts removed; he has heard that this might be effected without the removal of his leg and foot.

For nearly a month tonics, rest, and nutritious dietary, were persevered in without producing any effect on either the constitutional or local symptoms. His state left but two alternatives—amputation and excision—to choose between. In alluding to the circumstances which induced me to adopt the latter, I think it wholly unnecessary to enter on its advantages over amputation, when successful, Sir W. Fergusson's remarks on the subject are so conclusively in favour of the natural leg and foot being better than any artificial prop, even when they are considerably shortened.

This advantage, however, is only attainable by an after treatment much more troublesome and tedious than that of an amputation, and so long as pyemia exists as a possible consequence of a surgical operation, I cannot but think that the two large surfaces of sawn cancellated bone are more likely to induce it than the single smaller surface of compact bone in an amputation.

In this case, to warrant the increased hazard, I had a patient anxious that if possible his leg and foot should be preserved; of an age that gave hope of sufficient vitality to pull through the tedious

after treatment; with a history that showed clearly that the disease had commenced in the synovial membrane; so that notwithstanding the evidences of disorganization of it and of the cartilages, there were good grounds for supposing the bones were not diseased at any great distance from the joint. The absence of severe pain on pressure at a little distance from the joint gave some security as to the state of the periosteum.

The probability of pyemia I considered small, as the Infirmary is well situated on high ground outside a small town, and, therefore, comparatively free from the baneful influence which exist in thickly populated districts. I determined also to adopt the carbolic acid dressings as recommended by Professor Lister, believing that they must, at least, diminish the probability of pyemia. Dr. Nelson, the Assistant-Surgeon of this Institution, having had the opportunity of seeing these dressings applied by Professor Lister himself, and his house surgeon, in the Glasgow Infirmary, has lately treated several cases here on this plan with complete success, and convinced me of its applicability and value in preventing decomposition in a wound, facilitating union, and preventing constitutional disturbances, even in severe cases of compound fracture of the leg.

Having fully weighed all the circumstances, I believed it to be a case in which there was a fair chance of the operation of excision succeeding, and that as the patient was rather losing, further delay would be injurious. Accordingly, on December 2nd, I proceeded to operate; the patient having been placed on a low table, chloroform was administered by Dr. W. N. White, and complete anesthesia maintained, so that though there was occasionally a good deal of movement on the part of the patient, yet his first inquiry when in bed was whether the operation was over. Dr. W. Thetford took charge of the leg, and facilitated in every way the steps of the operation. Dr. Nelson had charge of the femoral artery, and did not allow a drop of arterial blood to escape till we were ready to secure the vessels. I adopted the H-shaped incision. Some pus escaped from the outer side of the joint; in reflecting the upper flap, the sinuses before mentioned were found to be lined with a pyogenic membrane; the fibrous structures on the lateral aspects of the joint were easily divided; the limb was then flexed to nearly a right angle, and the crucial ligaments brought well into view; they were stronger than might have been expected, from the duration of the disease, and contrasted remarkably with the altered state of the other articular structures; the posterior fibres were divided



with caution; the bones could now be separated a little, and the condyles were cleared from their posterior attachments, care being taken to keep the back of the knife to the popliteal space, the blade of Mr. Butcher's saw was passed behind the bone and the articular extremities sawn off; the line of section being accurately parallel to the plane of the joint, and therefore slightly oblique to the axis of the femur, a thin slice was then sawn off the head of the tibia with similar precaution; the feel of the saw in passing through made me sure, of what sight and touch afterwards confirmed, that the sections were made in sound bone. The patella being deeply ulcerated on the articular side was removed. The most tedious part of the operation was the securing of the multitude of small arteries which had retreated into the fibrous structures; having ligatured them, all clots were removed and the wound washed out with a solution of 1 to 30 of carbolic acid.

The sawn surfaces of bone were then adjusted, special care being taken to prevent the interposition of any soft part, and I had the satisfaction of seeing that when they were in apposition the axis of the leg was correct; the flaps were then replaced and retained in position by two points of sutures, one at each side so managed that the one stitch effected the apposition of the flaps to each other, and of both to the posterior margin of the vertical incision, lint steeped in carbolic acid and oil was laid over the lines of incision, carbolic acid putty over that, and a large piece of sheet-lead over all; the limb was then placed in a splint almost exactly similar to Mr. Butcher's. During the latter part of the operation and the dressing of the wound, the tendency to flexion of the thigh on the abdomen was very great, requiring constant and powerful exertion on the part of Dr. MacCormac, of Belfast, and Dr. W. Garner, to counteract it. The splint having been satisfactorily adjusted, the table was carried to the foot of the patient's bed, and he was lifted into it with as little disturbance as possible.

The clear, accurate, and detailed description given of this operation in Mr. Butcher's work on "*Operative and Conservative Surgery*," was of the greatest service to me, as before attempting it myself I had never had an opportunity of being present when it was performed.

Soon after the patient was placed in bed emesis occurred; afterwards he got some wine and a full anodyne, and warmth was applied to favour reaction.

As soon as I conveniently could, I examined the ends of the



bones which had been removed; they were covered with the fibro gelatinous fringes which are usually so plenty in advanced disease of the knee. The cartilage of incrustation had completely disappeared except one thin narrow bit on the inner edge of the inner condyle of the femur, and a corresponding bit on the tibia; even this was, however, quite rough and eroded, the ulceration of the patella was very deep and the bone quite soft; most of the fringes attached to it were dark and pulpy. The inter-articular cartilages were replaced by a gelatinous substance which did not even preserve their shape, except that few fibres of some strength showed where the posterior horn of the internal one had been.

On placing the sawn surface of the tibia on the table, and placing the end of the femur on it *in situ* for the erect position, I found the two measured exactly two inches on every aspect, front, back, and lateral; between a quarter and half an inch belonged to the tibia, and the rest to the femur.

For two days after the operation there was great constitutional disturbance and constant vomiting, which resisted prussic acid, morphia, &c. The first thing that the stomach retained was good pale sherry, and soon after a few sponge rusks; on the evening of the 4th the vomiting had ceased; the pulse was 140, yet the expression was good, and breathing unembarrassed. On the 5th, pus first appeared on the lower surface of the putty dressing, which was removed daily without the least disturbance to the limb.

During the ensuing three weeks the pulse kept above 130; irritative fever was gradually replaced by hectic; perspiration was profuse, and there was about an ounce of pus discharged daily; his appetite was, however, sufficient, and bowels regular without aperients.

The perspirations decreased under the use of bitter infusion and mineral acids. The only advantage obtained from the carbolic acid dressings was, that they prevented decomposition of the pus in the wound, the putty dressings when removed being always free from odour.

December 27th.—These dressings were removed, when it appeared that the sinuses were the chief source of suppuration, a carbolic acid lotion substituted for the dressings, and a solution of nitrate of silver was injected into the sinuses; this treatment was soon attended with a great decrease in the amount of suppuration and proportionate improvement in the patient.

The next note of importance is

January 10th, 1868.—Wound cicatrizing rapidly, secretion of pus very moderate.

Of his own accord he rolled the limb from side to side without the least pain or uneasiness; in a compound fracture of the thigh, attended with copious suppuration, more firmness than this indicates could not be expected in less than six weeks.

His general health continues good.

January 23rd.—The progress of the patient since the last note has been in every respect satisfactory; the incisions are all healed; one sinus is closed; two others still discharging. For the last three days the splint has been discarded, and the limb inclosed in canvas stays ribbed longitudinally with crinoline steel as a measure of precaution, for the firmness is such, that the limb can be raised from bed by the heel, and kept up without other support, while all necessary changes in the dressings and bed-clothes are being made, without occasioning either pain or uneasiness; considering that only seven weeks and three days have elapsed since the operation, I think this amount of firmness is as much as could be expected.

March 26th.—The firmness of the limb is now most satisfactory; he can bear it to be raised by the ankle, and roughly and rapidly shaken from side to side. There is a constant discharge from the sinus on the outer side of the limb, and a probe passed through it impinges on bone, so that at best the patient's recovery cannot be complete till an exfoliation has taken place. The health of the patient is good, and his capacity for taking nourishment is quite sufficient, so I still hope for a favourable result. Whatever may be the termination of the case, I intend, at some future time, to bring it before the readers of this Journal.

Since writing the above, I have read with great interest the case of excision of the knee reported by Dr. Stokes, junior, in the last number of the Journal, and so far as the experience of one case entitles me to speak on the subject, I entirely agree with the opinion expressed by him—that when the vitality of the patient is much reduced by either the duration or severity of the disease, amputation must be resorted to; still, I think, in some cases the very question as to whether the vitality is so far reduced as to forbid excision and demand amputation, will have the two operations canvassed at the same time. Indeed, as far as this case is concerned, it is not very encouraging, as it is nearly typical of the class of case in which the operation ought to succeed, and yet if

it does so it will be after many months of a process almost as exhaustive, though less painful, than the original disease of the joint.

*Carbolic Acid as a Surgical Dressing.*—I am induced to offer a few remarks on this subject, as now, from nearly nine months' experience, I entertain no doubt of the value of these dressings, when properly carried out, and I think the profession is indebted to Professor Lister, of Glasgow, for a great improvement in surgery. Where practitioners have failed to get such results as he has reported, I think it highly probable that they have not been sufficiently accurate in the manipulation of their cases. Yet if we consider the theory on which this practice is founded, the absolute necessity for accuracy of application becomes evident. If the air abounds in septic germs whose action is the chief cause of putrefaction, and if carbolic acid is to be used as the means of destroying these germs, there are obviously two indications for practice:—first, if air has once entered a wound or cavity that is suppurating, or is about to do so, the germs that have got in with it must be destroyed, and then their further entrance must be prevented.

The first is accomplished by washing out the wound or cavity with a solution of the acid, the second by keeping a layer of putty, made with carbolic acid and oil, enclosed between two folds of calico on the opening of the wound; this requires daily moving, and it should always be removed by placing the fresh layer over the old one, and then drawing the latter away—a moderate pressure being kept up on the new layer, so that it takes the place of the old one without permitting air, uninfluenced by the acid, to enter.

Another method of fulfilling the second indication is to lay a piece of lint, saturated in carbolic acid and oil, over the wound, and this remains, the putty being changed over it every day with less precaution. This plan succeeds admirably where there is no great quantity of suppuration; if the flow is copious the lint becomes loosened, and this lays the foundation of failure.

The strengths I have used are those mentioned in notes of the case of excision. I do not, however, consider that this treatment was as satisfactorily carried out in that case as it might have been. The solution of 1 to 30 of the acid is, I think, too strong for a simple incised wound, and is calculated to prevent any part of it healing by the first intention—at least such is my present impression, but I have not as yet satisfied myself whether a weaker



solution, from a half to a quarter of that strength, might not be used with advantage. But even if the use of the acid were discarded in the treatment of recent incised wounds, there remain other cases in which I have found it most useful.

To give a short sketch of the results of some of these cases is the best way to show what I have found that carbolic acid will do. In the carrying out of this treatment, Dr. Nelson has had the chief part, and indeed it is to his perseverance, after some of our early failures, it is due that we now use it with so much success.

Every bubo treated here since August last has been opened under a rag steeped in carbolic acid and oil, squeezed out under the rag, then the carbolic acid putty applied, over that sheet-lead and a spica bandage; in twenty-four hours the putty has been replaced by a rag similar to the first; any matter that may have accumulated again squeezed out, then fresh putty. This process was repeated daily till no matter came. In no instance had a fifth dressing to be applied, and therefore in no instance did the bubo degenerate into chronic suppuration.

During the same period several abscesses of the neck have been treated in the same way, and have, with one exception, been dismissed from treatment within the same time; in that one case the dressings were left off too soon, the orifice of the opening had not healed, air got in, and chronic suppuration was established, which, however, involved only about the lower half of the original abscess.

In the following case I feel confident that no other line of treatment as yet tried would have produced as good a result:—

F. W., aged thirteen, admitted to the County Down Infirmary 26th December, 1867, for a gunshot wound of the inner side of the left foot, which exposed the metatarsal bone of the great toe; the finger could be passed to a considerable distance across the dorsum of the foot under the skin.

The wound was cleaned, swabbed out with carbolic oil, and dressed according to Professor Lister's directions with rag, putty, and sheet-lead.

December 29th.—On removing the rag there was nothing but a small superficial granulating sore to treat.

The lad left hospital in a few days, apparently quite well.

The next case is one I select, not as being completely successful, but because the acid was used too strongly at first:—



Peter O'H., upwards of sixty-five years of age, admitted on 14th November, 1867. A wheel had passed over his leg, producing an extensive contused lacerated wound, and comminuting the bones. The wound was washed out with a solution more than four times the usual strength. For three days the patient suffered from sharp inflammatory fever and distension of the leg; on the fourth day there was a copious discharge of healthy pus from the wound escaping under the oiled lint. The fever rapidly subsided, and from the 19th November, for three weeks, although the suppuration was free, his pulse was never above 72, and he was perfectly free from constitutional symptoms; there never was the slightest odour of decomposition about the case.

Better results were obtained in the following case:—

J. D., aged fifty-five, admitted 8th February, 1868. Compound comminuted fracture of both bones of the leg, caused by the fall of a plank of 20 feet long, 14 inches wide by 4 thick. The wound was not large; some bone protruded; there was great contusion of the soft parts. The carbolic acid dressings, of the usual strength, were applied within an hour of the accident. There was never more than a few drops of pus on the putty dressing. On February 14th all these dressings were removed, and the case was then, and has since run the course of, a simple fracture.

The last case I shall give is one which, for so far, seems to favour the opinion that this form of dressing is calculated to diminish the necessity for operation in diseases of the joints:—

Anne D., aged forty-seven, admitted 7th January, 1868, with the right ankle swollen, and red fluctuation distinct, pointing anteriorly; the whole joint exquisitely painful; even on the heel she could not bear the least pressure. There was sharp irritative fever; the acute symptoms were of seven weeks' duration.

12th January.—The joint was opened under the defending rag, and about an ounce of pus discharged under the rag; the usual putty dressing then applied.

13th January.—There was about 3i. of pus on the dressings; pressure, which could now be tolerated, got about 3ss. more.

14th January.—There was merely a small spot of pus on the dressings; a probe, passed under the defending rag and into the opening, impinged on denuded bone.

For two months the pulse ranged from 76 to 84, and the patient

gained in health and strength; each day there was a little discharge on the dressings, more like turbid serum than pus.

After a few days of increased pain, and some constitutional disturbance, a swelling appeared between the outer ankle and tendo Achillis; this was opened on 27th March, 1868, and now, March 31st, seems to have settled down into the same state as the anterior opening; it was, and is, treated in the same way.

Reporting a case like this, which as yet has given no definite result, is perhaps not satisfactory, yet I believe if an acute suppuration in the ankle joint had been treated in any other way, the amount of suppuration would have been greater, and the constitutional symptoms of a much graver character, or rather it could not be expected, after such an operation, there would for two months be almost a complete absence of constitutional symptoms.

I have selected the foregoing cases as being the most instructive, although I have notes of very many more. I am conscious that they are almost a repetition of similar ones already published, but additional evidence on a subject like this, from one who has not a hobby to ride, may be of some use.

This I am confident of, that whoever in this practice bears fully in mind the necessity of accuracy in its application, and takes the trouble to secure it, will be rewarded by the results.

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ART. XVII.—*Notes on Herpes, Pemphigus, and Urticaria.* By  
HENRY SAMUEL PURDON, M.D., L.R.C.P., Edin.; L.R.C.S.I.;  
Physician, Belfast Dispensary for Diseases of the Skin, &c.

HERPES and pemphigus form the connecting link between erythema, on the one hand, and urticaria on the other. In erythema both the corium and cellular tissue are infiltrated with fluid, and which many pathologists consider to be exuded through the walls of the capillary blood vessels;<sup>a</sup> from this cause, the epidermis may be raised, either in the form of vesicles or blebs, the former in connexion with the distribution of particular nerves, being called herpes, and the latter from its size, pemphigus. Mr. E. Wilson has remarked that "pemphigus may be complicated with herpes; indeed the smaller

<sup>a</sup> The exudation that we meet with is essentially composed of that material which is generated by the altered condition of the inflamed part, and of the transuded fluid which escapes from the vessels."—Virchow's Cell. Pathol., page 356.

bullæ of this disease bear a considerable resemblance to the vesicles of herpes phlyctenodes, and the likeness to herpes is still further increased by the occasional appearance of the small bullæ of pemphigus in the form of rings.”<sup>a</sup>

Vesicles are defined by Hebra to be “elevations of the horny layer of the epidermis by transparent, or milky fluid . . . . An essential character of the vesicle is its size, for only those elevations of the epidermis which are in size between a lentil or a millet seed, receive this appellation; all those larger are reckoned as bullæ.” This latter elementary lesion is considered by the same author to have its seat in the epidermis, between its mucous and horny layers, and are found “both at the aperture of the hair-sacs and in the inter-follicular spaces, blebs or bullæ are distinct from vesicles, *simply by their magnitude.*”<sup>b</sup>

Like erythema, herpes and pemphigus are diffuse eruptions usually appearing over a considerable extent of surface at once. Pemphigus resembles urticaria, and which, according to Hebra, “not only in its acute, but even in its chronic form, sometimes presents the peculiarity that instead of wheals, bullæ are found at certain spots. But no one need be astonished at this exceptional occurrence, who bears in mind, that wheals themselves result from the pouring out of serum, and that an *increase in the quantity of fluid* is all that is necessary to raise the cuticle over a wheal, and to form a bleb. That this was known to the older authors, is proved by the expressions, *urticaria vesiculosa*, *urticaria bullosa*.”

In urticaria, the redness of the cuticle surrounding the wheals is due to hyperemia, the elevation of the epidermis, which is called a wheal, to fluid, and this latter state was considered by the late Dr. A. B. Buchanan, to arise from a circumscribed œdema of a cluster of capillary loops springing from a common stem, and under the influence of a common nervous twig. That the wheals in urticaria contain fluid, has been proved by the simple experiment of G. Simon, who passed a needle into one, and subsequently observed fluid to ooze from the puncture. The vesicles of herpes zoster are nothing more nor less than small bullæ, and the only difference between this disease (herpes) and urticaria, is that in the former the œdema ends in serous exudation, which elevates the cuticle in the form of vesicles, or small bullæ, whilst in the latter the effused fluid is in less quantity, not so superficial, and gives rise to the appearance known

<sup>a</sup> Diseases of the Skin, Second Edition.

<sup>b</sup> Hebra on “Diseases of the Skin.”—New Sydenham Soc.



as wheals. Moreover, herpes zoster resembles urticaria in its connexion with the nervous system, being now understood from the observations of Dr. V. Bärensprung, to be occasioned by irritation of the spinal ganglia, the posterior roots being implicated. Whilst urticaria in the majority of cases is a reflex irritation, proceeding from some important organ, usually the stomach or uterus, and under the control of a plexus of the sympathetic system of nerves. The exciting cause of herpes or pemphigus may be from exposure to cold and wet; pemphigus being often observed in barge and lighter-men, who are, from their occupation, frequently wet for hours, especially their lower extremities. In these individuals the cutaneous eruption is often of mixed character, if I may so express myself, viz.: bullæ and vesicles, when the latter, a considerable area of the skin may be covered by the eruption. The origin of pemphigus in these men is considered to be due to cutaneous imbibition, but I think that exposure to cold and wet, which paralyses the nerves of the part, and the capillary vessels thus loosing their tone, allow the escape of the more fluid parts of the blood, is most probably the chief cause.\* That herpes may arise from exposure to cold is well known, as the following case testifies:—

Mr. Thomas W——, aged thirty, employed in a merchant's office, consulted me, on March 3rd, 1868, for an eruption of herpes zoster on the left side of his abdomen. The account which he gave me of the appearance of the eruption was, that being over-heated from exercise a few days ago, he exposed himself to a draught of cold air, after which he felt a little chilly. In a couple of days the present eruption appeared, preceded by neuralgic pains.

Again, the following case, taken from a paper on the *Correlation of Cutaneous Exanthema with Neuralgia*, by Dr. Woakes, *Journal of Cutaneous Medicine*, Vol. i., page 279, is interesting.

“A little girl, aged three and a-half years, took a long journey in a waggonet during the prevalence of a cold north-easterly wind. Though well covered with a rug in front, it escaped observation, that the seat against which the child leaned was open at the back (as is usual in this kind of vehicle), and the short skirts of the child resting on the seat, allowed an almost uninterrupted admission of

\* According to Dr. Brown-Séquard—*Lancet*, Nov., 1858—if the nervous supply of a part be injured the blood vessels become dilated, and the temperature of the infected part is increased.



cold air to her waist. The following day, though previously in good health, a dense streak of herpes began to make its appearance round the left half of the body, about the line of junction of the child's skirts and the more closely fitting portion of its attire."

Derangement of the digestive organs, suppressed menstruation, &c., have caused the appearance of herpes and pemphigus, either singly or together; in fact, the same set of causes as in urticaria, only that this latter disease is more intimately connected with the function of digestion and assimilation. Pemphigus usually occurs in debilitated subjects, frequently from intemperance, is secondary to some constitutional derangement, and has been observed to co-exist with urticaria indeed; Hebra has described a case of urticaria in which several of the wheals passed into bullæ.\*

The vesicular eruption of herpes is frequently preceded by neuralgic pains, and I have observed the truthfulness of an observation of Hebra's, viz., that the first formed cluster of vesicles is always nearest the nervous centres, and that those which subsequently develop themselves lie more towards the peripheral distribution of the corresponding nerves, that herpes has no connexion with special anatomical situations, may be proved by anyone who has watched the development and course of this disease. The same remark applies to pemphigus, this latter affection occasionally occurring on the hard and horny cuticle of the hands and feet. Allusion has been made to the fact that herpes zoster is frequently preceded by neuralgic pains in the part about to become affected; and it is interesting to note that Heberden in his *Commentaries*, appears to have been aware of this fact, as in the following case:—"In a woman more than fifty years old, the herpes appeared upon the right clavicle, together with fever and pain throughout the whole right arm; the eruption and fever continued some weeks, but the skin remained scaly for several months, and the whole arm became gradually weaker till it lost all power of motion, and in this state continued at least for three years and probably her whole life. The fingers were constantly in an involuntary tremor." In the late epidemic in Dublin of cerebro-spinal meningitis, herpes and pemphigus were observed complicating the disease. Dr. Grimshaw in a paper contributed to the *Journal of Cutaneous Medicine*, No. 5, p. 37, describes two cases of phlyctenoid eruption, occurring during that epidemic. The first case was admitted into the Cork-street Fever Hospital, on February

\* Allg. Wien. Med. Zeitung, 1858, No. 2.

22nd, 1867; the patient was a female, and had previously two attacks of a vesicular eruption, "which, from the description given by herself, must have been herpes; the second of these attacks was about two years ago." The report goes on to say, that the face on admission was covered with vesicles, surrounded by a black areola, as if a line of ink had been drawn round the vesicles; a large bulla was situated on the right hand, movable under the cuticle, the arm, abdomen, hips, nates, and sacral region also presented vesicles, a few being likewise seen on the left leg; pulse 140; temperature in the axillæ 105°. The second case was that of a female child, aged six years, who, after being admitted into hospital, presented on the 12th day a phlyctenoid eruption on the face, accompanied by rigors. On the 14th day large vesicles appeared over the whole of the left side of the chest and upper part of the abdomen on the same side, no bullæ or vesicles on the right side. The bullæ ranged from half an inch to one inch and a half in diameter. This case, Dr. Grimshaw further remarks, "is interesting as a meningitis case, accompanied by the eruption of pemphigus, as well as the more usual eruption of phlyctenæ. It is remarkable that all the bullæ of the pemphigus occupied the left side; all the small abscesses which formed towards the termination of the case were on the right side of the body."

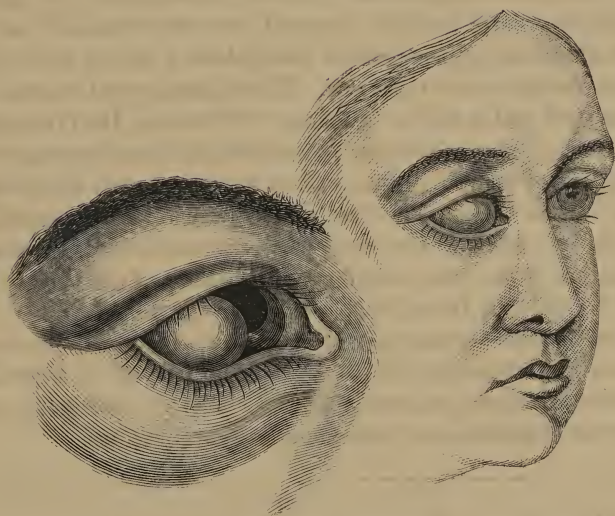
It will be evident from the preceding remarks, in which the observations of other authors are freely made use of, that the nervous system, the importance of which when deranged in occasioning disease, is daily becoming more recognized, plays a considerable part in causing the appearance of various cutaneous affections.

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ART. XVIII.—*Case of Tumour of the Eyeball.* By J. G. HILDIGE,  
F.R.C.S.I.

THE following case of tumour of the eyeball seems to me to be of peculiar interest, inasmuch as it points out the necessity of operating as early as possible in the course of the disease, while it shows, at the same time, that a tumour may remain quiescent for a long period in this locality, and eventually take on rapid growth so as to endanger the sight of the eye, and otherwise affect the patient generally.

Miss R——, aged nine, of a tolerably strong and healthy appearance, was brought to my house in the latter part of the year 1865, suffering from a wart-like tumour of the size of a large pea, which







was firmly attached to the external portion of the sclerotic and margin of the cornea of the right eyeball. The disease, according to her mother's statement, was congenital, and for a long period after birth did not make any perceptible progress; latterly, however, the tumour had gradually commenced to extend, not only in the direction of the cornea, but also to protrude to a greater extent from the eyeball. On examination I found it to be of a cartilaginous and extremely elastic nature, partially collapsing on pressure, so that I was at first disposed to think that it communicated with the interior of the eyeball. Further examination, however, convinced me that this was not the case. It was of a dull-greyish colour, with one or two small hairs growing near its apex, this portion of it protruded from the eyeball in such a manner that it was with difficulty the eyelids could be completely closed. The conjunctiva was reflected from the sclerotic to the sides of the tumour, where it gradually became changed in structure, and eventually lost in the growth itself. The whole mass was so firmly attached to the surrounding tissues, that when pushed or drawn aside with a forceps the eyeball moved with it, so that it almost formed part and parcel of the globe itself. The sight of the eye was not in the least impaired, the patient being able to read small type fluently, and to accommodate for near and distant objects perfectly.

As there was every probability that the disease would now continue to progress, and consequently impair, and, perhaps, destroy vision, and as the appearance of the eye was extremely repulsive, I advised the immediate removal of the tumour, the child being strong and otherwise healthy.

The child's mother, who was an extremely nervous person, became greatly alarmed at the idea of an operation, and declined to follow my advice; she, however, consulted two other physicians, and, as one of them was in favour of an operation, and the other opposed to it, she resolved to adopt the advice of the latter, and consequently took the child back to the country.

More than a year elapsed before I had an opportunity of again seeing the little patient, when, in the month of March, 1867, she returned to Dublin for medical advice. The tumour had increased considerably since I had last seen her; it now protruded so far between the eyelids that the eye was kept constantly open, although, strange to say, the eyeball was not in the faintest degree irritated from the constant exposure. It had also extended so far over the cornea that about one-fifth of the external or temporal side of the

pupil was covered by it. The child, in her attempts to see past the tumour, had induced internal or convergent strabismus to the extent of about one line and a half; this, however, might also have been produced more or less by the pressure of the tumour on the external rectus muscle, causing partial paralysis of its nervous supply. In appearance the growth now resembled a tolerably large unripe cherry, which threatened very soon to cover the whole of the eyeball. The sight of the eye was still good, the power of accommodation, however, was not so perfect as it had been on her former visit, and the field of vision was, as a matter of course, narrowed considerably.

The mother was now as anxious to have the operation performed, as she previously had been averse to it; it was, therefore, arranged that the operation should take place on the following day, a drawing having been first taken of the eye as shown in plate.

The child having been placed under the influence of chloroform, and the eyelids separated by means of retractors, I seized the tumour with a strong toothed forceps, and with a cataract knife attempted to separate it from its attachments. It was, however, so cartilaginous and elastic, that after several seconds I was obliged to give up the attempt, as the knife made no more progress through it than if it had been a piece of hard thick leather.

At the suggestion of Mr. Wm. Colles, who was present, I then tried a pair of strong curved scissors, and with this instrument I succeeded, with very great difficulty, in removing it. Before I had got half way through the base of the tumour, however, I found that that portion of the cornea on which it was seated had become so thin, that there was the greatest possible danger of an escape of the aqueous humour. Happily this did not occur, and the operation was completed without the slightest accident, the site of the disease showing an oval shaped opaque discolouration, the coats of the eyeball being here atrophied and degenerated to an extreme degree.

The removal of the tumour was not immediately followed by any inflammation or irritation, and the case proceeded extremely favourable during the ten or twelve days succeeding the operation; at the end of which period, however, the disease commenced to show a decided disposition to return, the opacity which occupied the site of the tumour becoming elevated above the surface of the eyeball, and presenting a vascular and granular appearance. Under these circumstances I decided on cauterizing the whole granulating surface with the solid nitrate of silver, which was followed with the best

results, and at the end of a few days, all trace of granulation had disappeared, the elevated portion of the growth becoming again on a level with the eyeball, and presenting a healthy aspect.

Four months after the operation, the state of the eye was as follows:—The seat of the tumour presented the same opaque discolouration of sclerotic and cornea, and was not at all diminished in size. It was covered with the conjunctiva and had the same glistening appearance as the rest of the eyeball. The eye was turned inwards to the extent of one line and a-half, forming a permanent strabismus convergens. The sight and power of accommodation were but very slightly affected, and the field of vision only narrowed in its external or outward portion. Whether the opacity of the cornea will eventually diminish in extent, or become more transparent, is a question which time alone can solve. I had no opportunity of making a microscopic examination in this case, as the tumour was mislaid immediately after the operation. The left eye was not at all impaired.

I find this disease has been variously denominated by different writers. Himly, for instance, calls it *chondroma conjunctivæ*; Graefe, *lipoma crinosum*; and Mackenzie, *sarcoma of the conjunctiva*. Professor Arlt classes it under the head of warts, and states that it is always congenital, and that out of five cases which had come under his observation, the tumour occupied, in four of them, the internal and inferior portion of the eyeball; and, in one, the external portion. He also relates a case which so closely resembles that which I have just been attempting to describe, that I feel it will not be out of place to give its details here, slightly abbreviated.

Anna Herbae, aged twenty-four, has a wart on her right eye of precisely the same nature as the ordinary congenital warts which occur on the face. The greater part of the growth is seated on the sclerotica, and a small portion of it on the external part of the cornea, towards the outer angle of the eye. From without inwards it measures five lines, from above downwards four lines, and at its most elevated point it is over two lines. It is of the same colour as the external integument, and has a number of short brown hairs growing from it. Towards its apex it is quite dry; it is hard and compact to the touch, elastic, free from pain, and slightly movable. It is impossible to close the eyelids completely, owing to the size of the tumour. About three-fourths of the cornea are free, perfectly transparent, and of normal curvature, and all other parts of the eye are healthy, the sight being, however, slightly



impaired. The disease is congenital, and has only commenced to increase materially during the last seven years of her life. The instruments I made use of at the operation were a forceps, scalpel, and scissors, and it was attended with considerable hemorrhage and pain. I found the sclerotic and cornea underneath quite unimpaired, the growth being so firmly attached to the former by means of a short strong cellular tissue, that I had considerable trouble in completely removing it. At the periphery of the cornea, the growth was more closely attached to this membrane than at any other portion of it, and with this exception it was here easily detached, the cornea appearing under it transparent, neither depressed nor elevated, and covered, at the points of separation from the tumour, with numerous specks of blood. Under the employment of cold applications the surface of the wound became covered with a quantity of thick, whitish matter, similar to pus, and after a few days granulations rapidly sprang up. After six days the conjunctiva bulbi commenced to cover the wound from the circumference to the centre, and encircled the now extensive granulation, which I was obliged to cauterize with the solid nitrate of silver. The portion of the cornea on which the growth was seated, became gradually opaque, shining, but not smaller, and the patient at the end of four weeks went home, before, however, the wound had quite healed. On microscopic examination, all three layers of the external integument, epidermis, corium, and panniculus adiposus, were shown, numerous hairs being also observed. The size of the wart was materially influenced by a rich deposit of fat in the larger meshes of the cellular tissue, which formed its inferior layer towards the outer angle of the eye.

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ART. XIX — *Clinical Reports and Observations on Medical Cases.*

By J. T. BANKS, M.D., Physician to the Richmond, Whitworth, and Hardwicke Hospitals.

DURING the present session there have been many cases in the medical wards of Sir Patrick Dun's Hospital which seem to me worthy of attention, and which have been reported with much care and accuracy by Mr. J. W. Moore, the resident medical scholar. The first case I propose to place on record is one which presents some points of great interest, and the history of which Mr. Moore was able to trace from an early period, an advantage rarely obtained in investigating disease in hospital practice.



*Cardiac Disease—Embolism—Paralysis.*

A girl, aged sixteen, was admitted into Sir P. Dun's Hospital, October 6th, 1867.

*History.*—Enjoyed good health to the age of eight years, when she suffered from an attack of rheumatic fever. From this illness she apparently quite recovered, but she experienced some annoyance from an inability to take any violent exercise without being instantly "out of breath." Her health, however, continued good until some two years ago. At this period she was in great grief for her father who had lately died, when one night she fancied she saw him. She screamed loudly, became convulsed, and fell paralysed to the ground.

From this time she remained hemiplegic on the left side. Subsequently, too, the convulsive attacks returned at indeterminate intervals, and with gradually decreasing severity, till at last they ceased altogether. She mentioned that during these fits she was wont to remain perfectly conscious. The paralysis did not affect the face to any extent; the arm was, however, from the first, quite powerless.

She was, soon after this attack, admitted into an hospital, where she stayed for some considerable time without experiencing any material benefit. Towards the end of March, 1867, she went to the Meath Hospital. At this time the left hemiplegia was perfectly established, considerable atrophy of the extensors of the forearm existed, and the limb presented all the characteristics of "dropped wrist." On examination of the chest there was detected a well-marked double murmur over the base of the heart. This bruit was carried into the carotids and subclavians. At the Meath she remained under Dr. Hudson's care for some time. She was finally admitted to Sir Patrick Dun's, under Dr. Banks's care, in the beginning of last October.

State on admission:—In appearance she was short and small for a girl of her age. There was noticeable a trifling asymmetry in the face, the left side slightly dragging over the right towards it. The pupils were dilated—the right especially so—yet the patient said her sight was good. There was no appreciable deviation of the tongue in protrusion. Speech was in no way affected, nor the powers of mastication lessened. As regards the upper extremities, the right arm was normal in every respect. The left, on the contrary, was almost powerless. The muscles of the anterior aspect of the limb were apparently healthy, but the biceps and all the

extensors had suffered severely. The appearance of the wrist was peculiar, since it was at right angles with the fore-arm; in fact, presenting in detail the characters of the "dropped wrist" of saturnine paralysis. The fingers were strongly flexed on the palm of the hand, and the thenar eminence was greatly reduced in size from atrophy of the muscles of the thumb. The sensation did not seem altered in the affected limb, nor was the temperature in the left axilla at variance with that in the right. Of the lower extremities, suffice it to say the right limb was healthy, the left partially paralysed, yet not in any wise to such an extent as the left arm. The great toe was strongly flexed on the palmar aspect of the foot. In walking, the left leg described an elliptical curve. Such were the paralytic appearances.

Connected with the *circulatory system*, the following points of interest presented themselves:—

First.—The heart's impulse was visible over a large extent of surface; it was also very strong. On laying the hand upon the chest a well-defined "fremissement cataire" was perceived.

Secondly.—A visible pulsation of the carotid vessels was noticed; the vessels of the arm also pulsated visibly; the region of cardiac dulness was enlarged; auscultation revealed the existence of a double post-systolic murmur, which was most intense to the left and at the base of the heart. This murmur was carried a considerable distance into the great vessels; the pulse afforded a well-marked example of the "collapsing" form, the sensation caused by it being that of a hard round substance rolling against the finger and then retreating; there was also a curious "kick" or jerk in it; the rate of the heart's action was normal, being about 80 per minute.

The general health of the patient seemed good; no complaint was made of head disturbance, or any constitutional lesion; occasionally slight palpitations of the heart took place; menstruation had never occurred; and the breasts were but little developed for her age.

On Monday, December 9th, the patient was seized at an early hour with violent palpitation and considerable dyspnea. These symptoms were soon followed by great nausea and some dry retching. During the next 48 hours these urgent symptoms increased greatly.

At 9 a.m., December 11th, she seemed rapidly sinking, only a single murmur was now audible; the visible pulsation of the large vessels had disappeared, and the pulse had become intermittent

about every seventh beat; it now rose to 120; there was great dyspnea, and the face began to assume a livid tinge. At 10 a.m. the pulse failed entirely; the heart's action grew weaker and weaker; and loud râles were audible over the chest. The patient became unconscious; a peculiar sighing or groaning occurred, and death supervened in a short time.

*Post mortem* examination (ten hours after death) conducted by Dr. Bennett.—Rigor mortis well marked, but to a slight degree less so on the left side; the abdominal viscera were healthy, except the liver, which was a little enlarged; the uterus was quite undeveloped, and there was no evidence of an ovum ever having escaped from the ovaries; the thoracic viscera were next examined—the lungs were healthy, without a trace of tubercle; some old adhesions existed on the left side posteriorly; the pericardium was large; and the heart appeared considerably hypertrophied; no abnormal quantity of fluid was found in either the pleuræ or the pericardium; the right auricle and ventricle were free from blood; the mitral orifice was much contracted, and had been so to all appearance for a long time; the valve was adherent around; the aortic opening was patent, and the valves were thickened and hardened; indeed, on the valves of both aortic and mitral orifices were traces of recent inflammatory action; one of the aortic valves had fallen back, and a large and firm coagulum filled the opening. To this state of things we must look for the immediate cause of death. The aorta itself was throughout sound, if we except its origin, where there were lymph deposits of a recent date.

The carotid vessels were very different in appearance on the two sides.

The right common carotid was not much more than half the size of the left in calibre. And this difference was still better seen in the internal carotids. The right was reduced to a minimum, but was still pervious to the place of its entering the brain.

At the base of the brain were trifling adhesions. The carotid vessel near the "circle of Willis," on the right, was extremely small.

The *examination of the brain itself* gave the following results:—The right "centrum ovale minus" of the cerebrum was found much indurated at the junction of the anterior and middle thirds. The right artery of the "corpus callosum" was partially obstructed opposite that substance. On cutting into the roof of the right



lateral ventricle, there was seen a cyst of the size of a filbert, containing a thick and turbid serum. This cyst (an example of that described by Rokitansky) involved the posterior portion of the corpus striatum, but did not open into, or communicate in any way with, the lateral ventricle itself. Across the centre of the cyst itself stretched a fibrous band, apparently an occluded blood-vessel, and probably a branch of the middle cerebral.

A *microscopic* examination showed that the fibres of the contracted muscles of the paralysed limbs retained all the characters of healthy muscle. No evidence of fatty degeneration was apparent.

It is manifest from the details of this case that the starting point, the first link in the chain of morbid action, is traceable to the rheumatic fever which seized the child at the age of eight years, and laid the foundation of disease which ultimately proved fatal. We have no means of knowing the particulars of the rheumatic fever, but it may be assumed, as a matter of certainty, that cardiac disease had its origin at this period, from inflammation of the endo-cardium. The cardiac complication was probably overlooked, but the observation which was made, after the child had apparently quite recovered, that she became breathless on taking exercise, abundantly testifies to the fact of the heart having suffered in the rheumatic fever.

Her health we find, with the exception of the inability to take part in the active exercise of children of her own age, was good until two years before she entered the hospital. Then came the strange event in the history of the case—the sudden seizure, the convulsions, the apparition of her father, whose recent death had deeply preyed upon her mind, and the termination in hemiplegia of the left side. That the obstruction of a vessel by the transportation of a fragment of the excrescences on the aortic valves was the cause of the cerebral disease appeared sufficiently plain. The order of events being—rheumatic fever, complicated with endocarditis, embolism, cerebral disease, and paralysis. The paralysis was permanent, but the convulsive attacks, which for some time occurred at uncertain periods, finally ceased; and here it may be mentioned that the girl, who was perfectly intelligent, and who gave a very clear account of her illness, stated that during the convulsive seizures she retained complete consciousness. The atrophic condition of the paralysed arm is an interesting feature in the case, and its limitation to the extensor muscles, thus resembling the alteration in the muscles produced by saturnine paralysis, so different from the general wasting



so common in ordinary paralysis. The signs of aortic patency were peculiarly well marked, and it is noted that they disappeared for some time before death—a phenomenon I have frequently observed in insufficiency of the aortic valves. With extensive disease, and a state which must lead to a fatal issue sooner or later, the death, nevertheless, was, so to speak, sudden and unexpected.

Up to forty-eight hours before her death there was no symptom to indicate her approaching end; her condition was in no respect different from what it had been for a considerable time. In the whole course of the disease the mind was perfectly unclouded.

*Pleural Effusion.—Thoracentesis.*

CASE II.—A sailor, aged twenty-four, was admitted into Sir P. Dun's Hospital on the 9th of December; he was a young man of strong build, and his health had been uninterruptedly good until two days before his admission, when he sustained a severe fall on his back on board ship. Not many hours after the receipt of the injury he experienced a severe pain and soreness of the left side; he had rigors followed by some amount of pyrexia. On admission the symptoms were by no means urgent, there was slight cough with soreness and sense of general uneasiness but no dyspnea.

On examination of the chest the following physical signs were found to exist:—The left side dull over its whole extent, both anteriorly and posteriorly, but the dulness did not transgress the median line. The intercostal spaces were obliterated; the respiratory murmur was absent over the left side from apex to base, and there was no vocal fremitus. The side was perfectly motionless. The heart was displaced towards the right side, its impulse being perceptible and the sounds audible in the median line. There was puerile respiration on the right side. On this day, the 9th of his illness, the pulse was 104, the temperature  $103\cdot6^{\circ}$ , and the respiration only 24. The following day the pulse was 106, respiration 28, temperature  $101\cdot5^{\circ}$ ; complete dextrocardia, the impulse of the heart being felt one inch to the right of the sternum. Measurement of the chest gave the following results:—

Right side,  $17\frac{1}{4}$  inches; left side, 18 inches.

11th day.—The heart two inches to right of sternum; bronchial râles over the right lung but no increase of pyrexia.

On the following day the pulse and respiration had risen; the temperature also was higher; bronchial râles were audible over the right lung; the dyspnea had become more distressing, and

there was considerable anxiety. The ordinary means to produce absorption having failed, it was determined to resort to an operation. This was performed by Dr. Bennett, and forty ounces of straw-coloured serum (sp. gr. 1020) were drawn off. The relief was immediate and most marked. The pulse fell to 72, and the respiration to 24. The breathing easy and tranquil, and the patient soon fell into a quiet sleep. The progress of the patient, from the date of the operation to the establishment of convalescence, was uninterrupted; therefore it is needless to give details of the case from day to day until his departure from the hospital. The bronchitis of the only lung he had to breathe with rapidly yielded, and the amelioration of all the symptoms which had existed before the fluid was removed was very remarkable.

It is not my object at present to enter into a consideration of the treatment of pleural effusions beyond the question of the operation of thoracentesis. As many physicians still entertain strong objections to the operation of thoracentesis, it appears to me that the publication of cases in which this operation has been resorted to, affords the best means of removing prejudices on the subject. Fully impressed, from experience, with the fact that many cases of pleural effusion, the result of acute inflammation, yield to treatment judiciously carried out, I am at the same time persuaded that life is frequently lost by abstaining from operative interference, either altogether or postponing it until too late. I can recall to mind no inconsiderable number of cases which terminated fatally, and which I think might have been saved. The more extensively practised is thoracentesis the more firmly will the value of the operation be established, and we shall then no longer hear of the danger of the entrance of air into the pleura and other objections which in point of fact have no real foundation.

The experience of many of the most accurate observers at home and abroad is favourable to the operation, and pre-eminently may be mentioned Trousseau, who has brought forward a mass of evidence to support of his opinion, which is of incalculable value. Once persuaded that pleural effusion is progressing, notwithstanding the employment of all the ordinary means which have succeeded in many instances, the sooner we remove the fluid and relieve the patient the better, and the more likely is it that we shall succeed. No need to wait for the presence of the group of symptoms which authors frequently lay down as justifying thoracentesis; if we wait for these we convert into a paliative what at





Mr Stokes' Contributions to Practical Surgery.

PLASTIC OPERATIONS.



an earlier period might be a curative proceeding. I would point to the bronchitis in the case under consideration as a reason for an early operation, believing that the presence of any diseased action interfering with the function of the remaining lung urgently demands that we should at once endeavour to arrest the disease. As in the case before us, one operation will often suffice, and the patient's recovery be the result; but we do meet with cases in which after the drawing off of the fluid the effusion again takes place and again the operation is needed. When we are satisfied that the simple operation is not likely to afford any permanent good effect we have still in the drainage tube a means which has frequently proved adequate to save life, even under the most apparently unfavourable circumstances.

And in conclusion, I may observe, that since Dr. Goodfellow brought the practice of drainage in empyema under the notice of the Profession, my own experience strongly testifies to the very great value of the operation.

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ART. XX.—*Contributions to Practical Surgery.* By WILLIAM STOKES, jun.; Surgeon to the Richmond Surgical Hospital; late Surgeon to the Meath Hospital and County Dublin Infirmary; Lecturer on Surgery Carmichael School of Medicine; Fellow of the Royal Medico-Chirurgical Society of London, &c.

*On a Remarkable Case of Gunshot Injury of the Orbit resulting from the Bursting of a Fowling-piece, in consequence of which the Screw and Portion of the Breech striking in the first instance the Right Superciliary Ridge, and taking a direction Downwards and Inwards, completely destroying the Eye, and passing through the Floor of the Orbit, were eventually lodged in the Cavity of the Right Nasal Fossa. Plastic Operation successfully Performed.*

THERE is no class of wounds of the eye or orbit which are of greater interest and importance, and therefore better entitled to careful consideration on the part of the surgeon, than those resulting from gunshot injuries; and the particulars of the case, which we shall presently discuss, affords another remarkable example of the great frequency with which the eye and its appendages are injured when only a single shot strikes a person. This singular liability of the eye being so frequently the seat of these injuries has been

noticed by Mr. Cooper and other writers on injuries of the eye. Of these, that which is produced by the bursting of a gun and the lodgment of a portion of it in or in the immediate vicinity of the orbit, is obviously the most formidable accident; and, in truth, the fact of the gunshot injury in the case we are about to discuss not having terminated fatally, is in itself a matter of no small surgical interest. Records of a few similar cases are to be found. One in which the result was, like mine, favourable, is mentioned by Mr. William Cooper in his admirable work on *Injuries of the Eye*. The particulars of the case are quoted from Beck's *Medical Jurisprudence*. The case was one of a man who had his eye blown out by the bursting of a gun. "The surgeon dressed it, and on the second dressing he perceived something hard among the injured substance of the eye. He found this to be metallic, and, getting hold of it with his forceps, pulled it out, when, to his surprise, he found it was the breech of the gun which had been forced backwards by the recoil and been jammed into the orbit. Notwithstanding this extensive injury, which annihilated the eye, the man made a perfect recovery."

Dr. Keith, the deservedly eminent surgeon of Aberdeen, has also recorded a remarkable case of this sort, in which the breech of a gun was lodged for four months below the right eye and across the nose.<sup>a</sup> The patient, James S., aged nineteen, stated that while shooting on the morning of the 19th February, 1857, on the sea cliff near Aberdeen, his fowling piece burst. "He stood stunned for a minute and then fell to the ground quite insensible, and so continued for about half an hour. When consciousness returned he found himself in a farm house, and then in the course of another half hour was seen by a surgeon. He had bled very freely all this time from a large and deep wound in his face between his eyebrows and just below that level into the very root of his nose. The wound extended from below the right eye, across the root of the nose, and into the left orbit, lacerating the lower eyelid and utterly destroying the left eyeball. The bones of the jaw proper seem to have been so far separated from the os frontis, that the patient is positive the surgeon applied one hand under his chin and the other on the crown of his head, and pressed them forcibly together."

On June 25, four months after the accident, the foreign body was successfully extracted by Dr. Keith. Before doing so the

<sup>a</sup> Medical Times and Gazette, Oct. 23, 1858.

nasal bones had to be widely separated, and the piece of metal, which formed the breech of a fowling piece, weighing two ounces and five drachms, and measuring two inches and a half in length, was extracted. The thick or screw-bolt end entered first, and penetrated so far as to allow the very tip of the screw-plate to be covered in by the skin of the nose. There was no profuse hemorrhage during the operation. The case ultimately did very well, and an artificial eye having been adjusted, it was "difficult to discover that anything very serious had ever befallen him."

A somewhat similar case is detailed in the *Edinburgh Monthly Journal* for September, 1856, by Dr. James Fraser, of St. John's, Newfoundland. In this case the foreign body, which was a large coarse breeching of a common musket, was lodged in the right superior maxilla, and after remaining there for a period of eight years, was removed by Dr. Fraser, and the case ultimately did well.

A case in which this accident occurred was under observation in the Richmond Surgical Hospital many years ago, under the care of the late Dr. Hutton. The case terminated fatally, as might well be expected from the extensive nature of the injury, and the preparation of the fractured bones of the face and head, as well as the missile, are carefully preserved in the magnificent pathological museum which is attached to the hospital. The injury was caused by the bursting of a gun two hours previous to the patient's admission into hospital. A portion of the breech of the gun struck him on the superciliary margin of the left eye, producing a compound comminuted fracture of the skull. Several splinters of bone and portions of the stock of the gun were driven into the brain. We learn from the description of the preparation in the catalogue of the museum that when he was admitted into hospital the patient had rigors, the surface of the body was cold, pulse slow and weak, the respirations were sixteen per minute and unaccompanied by stertor; he answered questions rationally, but in monosyllables. A profuse hemorrhage followed the removal of some of the splinters of bone and wood from the brain. Symptoms of delirium set in shortly after the patient was admitted, and he was obliged to be forcibly restrained. Seven hours after admission his pulse was 70 per minute and respiration without stertor. Upon the morning after the occurrence of the accident he had delirium ferox; his pulse was 120 and feeble; he screamed so as to be heard in all parts of the hospital; his pulse rose to 150, and he died in thirty-six hours after the receipt of the injury. The pupils were



never unnatural throughout, and he had no convulsions. The left nostril was insensible to the most pungent odour.

As this case is one of such interest I feel that no apology is necessary for giving so many of its details. The full particulars of the case are graphically described in the catalogue of the Richmond Hospital Museum by my distinguished colleague Professor R. W. Smith.

Any record, however brief, of this class of injuries would be obviously incomplete without reference to the celebrated case of Lieutenant Fritz, to which reference has been made by several writers, and the full particulars of which are given at length by Sir James Simpson in his work on acupuncture, as a case strikingly illustrative of the tolerance of living structures for the presence of metallic bodies. Sir J. Emerson Tennent in his work on Ceylon thus describes this classical case:—

“Among extraordinary recoveries from desperate wounds I venture to record here an instance which occurred in Ceylon to a gentleman while engaged in the chase of elephants, and which, I apprehend, has few parallels in pathological experience. Lieutenant Gerard Fritz, of the Ceylon Rifle Regiment, whilst shooting at an elephant in the vicinity of Fort Macdonald, in Oorah, was wounded in the face by the bursting of his fowling-piece on the 22nd January, 1828. He was then about thirty-two years of age. On raising him it was found that part of the breech of the gun and about two inches of the barrel had been driven through the frontal sinus, at the junction of the nose and forehead. It had sunk almost perpendicularly, till the iron plate called the tail-pin, by which the barrel is made fast to the stock by a screw, had descended through the palate, carrying with it the screw, one extremity of which had forced itself into the right nostril, where it was discernible externally, whilst the beaded end lay in contact with his tongue. To extract the jagged mass of iron thus sunk in the ethmoidal and sphenoidal cells was found hopelessly impracticable; but, strange to tell, after the inflammation had subsided, Mr. Fritz recovered rapidly, his general health was unimpaired, and he returned to his regiment with this singular appendage firmly imbedded behind the bones of his face. He took his turn of duty as usual, attained the command of his company, participated in all the enjoyments of the mess room, and died *eight years afterwards*, on the 1st of April, 1836, not from any consequences of this fearful wound, but from fever and inflammation brought on



by other causes. So little was he apparently inconvenienced by the presence of the strange body in his palate, that he was accustomed with his finger partially to undo the screw, which, but for its extreme length, he might altogether have withdrawn. To enable this to be done, and possibly to assist by this means the extraction of the breech itself through the original orifice (which never entirely closed), an attempt was made in 1835 to take off a portion of the screw with a file, but after having cut it three parts through, the operation was interrupted, chiefly owing to the carelessness and indifference of Captain Fritz, whose death occurred before the attempt could be resumed. The piece of iron, on being removed after his decease, was found to measure  $2\frac{3}{4}$  inches in length, and weighed two scruples more than two ounces and three quarters. A cast of the breech and screw now forms No. 2,790 among the deposits in the medical museum of Chatham."

This remarkable case is also alluded to in Mr. Guthrie's *Commentaries on the Surgery of the War*, and the full particulars of it were detailed to the Surgical Society of Ireland, on January 18th, 1845, by Dr. O'Callaghan, then Surgeon to the Eleventh Hussars. In the discussion on this case, the late Sir Philip Crampton, who presided, alluded to another case, detailed by Mr. Rogers in one of the earliest numbers of the *Medico-Chirurgical Transactions*, in which the breech of a gun penetrated the cranium, about the centre of the os frontis, lodged and continued to remain in the substance of the brain, yet no one had an idea that any extraneous substance existed there, until after six weeks, when a black hard body appeared in the wound, which, when extracted, proved to be the breech of a gun, and which weighed several ounces. The man recovered perfectly without any loss of his faculties.

Mr. R. Hughes, surgeon to the Stafford Infirmary, also has detailed a case<sup>a</sup> where a portion of the breech of a musket, which burst, was driven through the roof of the orbit so as to bed itself in the brain, and after it had remained there for a period of fourteen months, the patient only occasionally complained of a "sensation of weight in the head, especially on stooping. Neither his sight nor smell were interfered with."

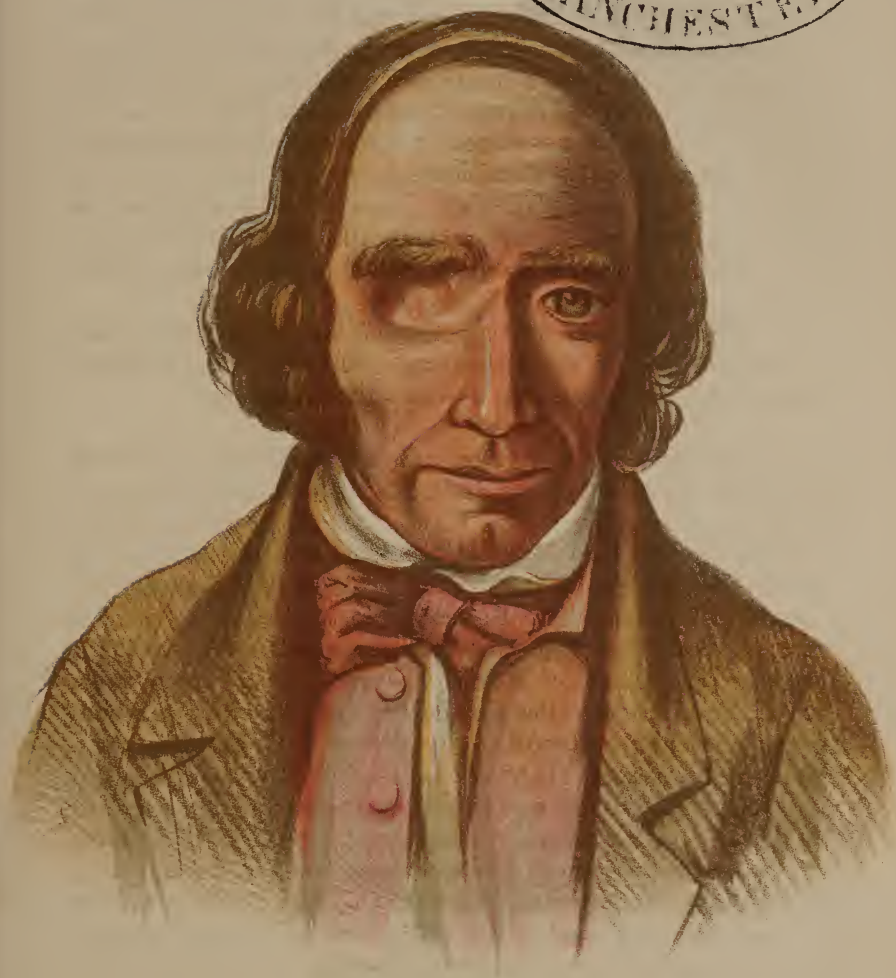
The following case, which came under my observation, adds another to the list of these grave injuries, which, fortunately, are so rarely met with. In this case it appears most likely that the

<sup>a</sup> The Lancet, September 18th, 1858.

patient's life was saved in consequence of the alteration in the direction the breech of the gun took, for, as the outer portion of the superciliary ridge is deeply indented, it would appear as if the foreign body just struck the bone in this situation, and then, instead of passing upwards, or directly backwards, and penetrating the substance of the brain, its direction was altered, and it took a course downwards and inwards, and passing through the floor of the orbit, was finally lodged in the right nasal fossa. The patient was thus saved from the disastrous consequences which would in all probability have supervened and proved fatal, as occurred in Dr. Hutton's case, had the brain been penetrated.

The screw and breech of the gun, which are accurately delineated in their full size, in the accompanying drawing, were extracted without much difficulty, about a week after the accident.

Neil Ruddy, aged forty-seven, was admitted into the Meath Hospital on the 20th January, 1865, having been recommended to me by my friend, Mr. Henry Wilson. A glance at the annexed chromo-lithograph from a drawing executed by the late Mr. Conolly, gives an excellent idea of the deformity which the patient suffered from on his admission into hospital. No trace could be found of the eyeball which had been completely destroyed, and at the lower and inner portion of the floor of the orbit there was a large, somewhat circular or tubular passage about an inch and a quarter in length, extending downwards to the floor of the right nasal fossa. There was no evidence of any diseased bone. The patient's health was very good, but he was greatly distressed by the continual draught of cold air passing through the passage leading from the orbit to the nasal fossa, and which rendered him very liable to influenza. The patient's great desire naturally was, therefore, to have some operation performed, which would have for its object the permanent closure of the passage, and consequent exclusion of the air. Considering that a plastic operation would have the desired effect, and my colleagues also fully concurring in this opinion, I recommended it to the patient, and he willingly acceded. The operation was accordingly performed on January 22nd. I commenced by vivifying the edges of the eyelid, the upper portion of which was found drawn back and, to a great extent, adherent to the roof of the orbit, with Langenbeck's small two-edged bistoury, an instrument specially adapted for vivifying the edges of cleft palates in staphyloraphy and uranoplastic operations. This being done I proceeded to transplant



Mr Stokes Contributions to Practical Surgery.

PLASTIC OPERATIONS





a piece of integument from the forehead in order to cover in the defect. A portion of integument somewhat oval in shape, and about two inches in length, was brought from above and to the inner side of the eyebrow, down covering the defect, and made adherent to the vivified edges of the eyelids by numerous points of interrupted iron sutures.

The operation, although it can thus be described in very few words, was an extremely tedious one, as those who are familiar with the practical details of plastic operations can, I am sure, well understand.

Jan. 23rd.—Patient had a bad night; great headache; occasional bleeding from the nose; temperature of the flap four degrees below that of the surrounding parts.

Jan. 24th.—No return of the hemorrhage or headache; temperature of flap five degrees below that of surrounding parts; slept well.

Jan. 26th.—Only three degrees difference in temperature between flap and adjacent structures; appetite good; slept well. Removed several of the points of iron suture.

Jan. 29th.—Eighth day. All the sutures removed; all going on well; wound in the forehead rapidly healing.

Three weeks after the operation the flap having become firmly united, and the wound in the forehead having completely healed, the patient left hospital and returned to the country. The drawing, of which a chromo-lithograph is annexed, showing the result of this plastic operation, was taken by Mr. Burnside, twelve months after the operation.

I think the preceding case, the notes of which have been furnished to me by my apprentice, Mr. James Brady, is well worthy of record in a two-fold point of view; in the first place as affording an example of what is a very rare surgical injury, and also from its showing the good results which may be obtained in such cases by plastic surgery.

## PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

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*Lectures on the Theory and Practice of the Ophthalmoscope.* By HENRY WILSON, F.R.C.S.; M.R.I.A., &c., &c. Dublin, 1868. Pp. 148.

IN the volume before us, Mr. Wilson has published, in a collected form, many of his papers on ophthalmoscopy which have, from time to time, appeared in the pages of the *Dublin Quarterly Journal*, together with much new matter, the substance of clinical lectures delivered on various occasions before the class at St. Mark's, and at the Richmond Hospital. With these materials he has produced a book which, we think, supplies a want for some time felt in English medical literature.

It is now universally acknowledged that the ophthalmoscope is an instrument of much wider application than was at first supposed; that not only has it made of ophthalmology a new science, but that it is capable of throwing much light (and no one can yet say how much) on some of the most obscure diseases which come under the care of the general practitioner. Hence, not only those who propose to devote themselves as specialists to the diseases of the eye, but all students of medicine, whatever branch of the profession they intend to follow, are bound to familiarize themselves with the use of the ophthalmoscope, so as to be able to take advantage of what has been already made out by its means, and by new researches to help forwards that most hopeful branch of science—medical ophthalmoscopy.

But it is impossible for the ordinary student or general practitioner to give the same amount of time to the ophthalmoscope as is given by the specialist; nor is it necessary that he should. Now, the non-specialist has hitherto had no book on ophthalmoscopy. There are excellent works in our language on this subject, notably, Mr. Carter's translation of *Zander*; but these are addressed to the specialist, and are encumbered with details which, while indispensable to the ophthalmologist, are unnecessary for those who do not

desire to devote themselves exclusively to the diseases of the eye. To these latter we think Mr. Wilson's work will be most welcome and eminently useful; while to any one who wishes to pursue the subject further, it will form an admirable introduction to the more elaborate works, whether in our own tongue or in foreign languages. Mr. Wilson aims at simplicity; his lectures are written in an easy readable style, without too free a use of the barbarous technicalities which so abound in ophthalmology as to render a glossary a necessary appendix to many works; there is not a single mathematical formula from beginning to end; and the text is freely illustrated by lithographic plates and wood-cuts, many from original drawings by the author.

The first two lectures are devoted to the theory of the ophthalmoscope, and to a description of the principal modifications of the instrument which are in general use. These have already appeared in our pages, and it is, therefore, unnecessary to notice their contents at any length. We may, however, say, for the benefit of those about to purchase ophthalmoscopes, that Mr. Wilson recommends for ordinary use the small Liebreich; of the fixed ophthalmoscopes he prefers Smith and Beck's modification of Liebreich's larger instrument; and of the binocular ophthalmoscopes he gives the preference to Giraud-Teulon's rather than to Laurence's.

The third lecture is on the anatomy of the parts seen by the ophthalmoscope. A brief and, as far as it goes, correct, account of the anatomy of the vitreous humour, optic nerve, retina, and choroid is given. We think, however, this chapter might have been expanded with advantage. The ignorance among students of the anatomy of the organs of special sense is very great, and the descriptions of these organs given in the ordinary anatomical text books are very imperfect. In ophthalmoscopy it is of the greatest importance to know accurately the histology of the parts seen, for it is as a detector of tissue changes that the ophthalmoscope will probably prove most useful. A fuller account of the anatomy of the optic nerve, choroid, and retina, with drawings, would therefore have greatly enhanced the value of Mr. Wilson's book.

The fourth lecture is on the examination of the eye with the ophthalmoscope. This has already been published in this Journal.

The fifth lecture treats of the anomalies of refraction and accommodation. The diagnosis of the errors of refraction by the ophthalmoscope is chiefly spoken of in this chapter. This method is

unsatisfactory, for the observer must have more control over his own accommodation than most persons possess, and must, moreover, know accurately the condition of refraction in his own eye, and the observed eye must be paralysed with atropine, so as to be sure that the patient is observed in a state of rest of accommodation. Hence, Mr. Wilson is right, when he says, "the beginner will do well in all cases of supposed ametropia to supplement his ophthalmoscopic observations by actual test with the proper glasses." In connexion with irregular astigmatism, Mr. Wilson notices the curious appearance seen in some cases of displacement of the transparent crystalline lens, when two images in the fundus are seen together.

In the next lecture, on the diseases of the vitreous humour, we find a good account of the floating opacities which often cause the troublesome affection known as *muscæ volitantes*. After a description of the symptoms of this affection, we read:—"When we are consulted about these symptoms we should always dilate the pupil fully, and make a very careful examination of the lens and the interior of the eye before pronouncing an opinion respecting them. The floating bodies generally rise from the sides or bottom of the vitreous chamber in the movements of the eye, and appear, by their direct examination with transmitted light, as more or less dark opaque objects, very often corresponding to the patient's description of them; by incident light with oblique illumination, they appear often of their natural greyish colour." "Simple floating spots are a very common precursor of cataract, or accompaniment of that disease in its early stage; where the cataract has fully formed they disappear, because they are invisible against the dark opaque lens; when the lens is removed and light once more admitted, they frequently again become visible." Hyalitis, effusion of blood into the vitreous, synchysis, foreign bodies, entozoa, and tumours bulging into the vitreous, are described in this chapter. The tumours usually grow from the anterior or middle part of the choroid:—"The vascularity observable on the visible surface of these growths is said to afford a means of recognizing their nature; when the retinal structure is apparent, the vessels straight, few, indistinct, and recognizable as the retinal vessels, the probability is, the growth is benign; if the vessels are numerous, large, gorged, and apparently coming from many points and running in all directions, the disease is likely to be malignant."

The seventh chapter, on the optic nerve, begins with a brief account of the congenital peculiarities of the disc. The great



variability in the aspect of different healthy discs is then dwelt on:—"As the exterior of the eye is scarcely alike in any two individuals, so does the appearance of the optic papilla vary in almost every individual; and I find it a difficult matter even still sometimes to decide from inspection alone whether the nerve under observation presents a normal appearance or not." We are recommended in every case of doubt to investigate the acuteness of vision by Snellen's test type, and to map out the field of vision. Full directions for both these modes of examination are given. Under the head of anemia of the optic disc, Mr. Wilson records a case of embolism of the central artery which occurred in his practice. Total blindness was produced in a few minutes, the second eye having been destroyed by an injury years before:—"The optic disc was of a very pale blueish tint, the arteries had altogether disappeared, and there remained only two or three thread-like veins, which seemed to vary in calibre every now and then; the surrounding fundus was pale, but otherwise healthy, with the exception of a couple of scarcely visible white specks about the position of the yellow spot." It would have been interesting to know the termination of this case, and whether the changes noticed by Graefe and Liebreich in the region of the yellow spot were observed. Mr. Wilson makes the interesting observation, that instillation of atropine frequently produced congestion of the optic disc; hence he advises us, when possible, to examine the fundus before dilating the pupil. Neuritis is very fully described, and its connexion with albuminuria and cerebral disease noted. Mr. Wilson does not believe in the attempts which have been recently made to localize the seat and determine the nature of brain disease by the ophthalmoscopic appearance of the fundus, although he fully recognizes the value of the ophthalmoscope in connexion with other modes of examination in determining that disease of some kind exists somewhere within the head. In this we are inclined to agree; but it must be remembered that medical ophthalmoscopy is in its infancy, and that the workers are few. That most valuable results will be gained by this mode of examination we have no doubt; and if Mr. Wilson's book should be the means of bringing new investigators into the field, he will have done no little service to the cause of medical science.

The occurrence of blindness from the use of tobacco or alcohol is a subject of so much interest that we make no apology for quoting Mr. Wilson's opinion on this point.

He says:—

“I have no doubt of the occurrence of this blindness (tobacco amaurosis), but I have doubts as to its great frequency; it is singular that amongst the thousands, or I may say millions, of smokers, blindness can be so comparatively seldom attributed to the poisonous influence of tobacco. Patients labouring under this malady are scarcely ever seen until the disease has passed through various stages; in a very few instances, which I believe to have been the early stage of tobacco amaurosis, the nerve presented a very slightly swollen pink appearance and partial whitish opacity. I not unfrequently see alcoholic amaurosis in which there is decided congestion and even infiltration of the papilla; it presents a dimmed, soft, swollen appearance, the vessels large, but not as distinct as they should be, the outline of the disc not sharply defined, and the whole fundus congested. This is sometimes, I think, primarily due to choroiditis. The affected person complains of dimness of vision as if a mist or veil was before the eyes. They see best in strong light, but at no distance can they see well. Such persons may recover their sight under suitable treatment and total abstinence.”—P. 77.

The remainder of this chapter is taken up with an account of atrophy, apoplexy, and tumours of the optic nerve, and aneurism of the *arteria centralis retinae*.

The retina forms the subject of the next two lectures, and in them we find a very complete account of the congenital peculiarities, diseases and injuries of this membrane. Considerable space is given to retinitis and its constitutional causes, as albuminuria and syphilis. How the ophthalmoscope has changed our ideas on the subject of acute retinitis is pointed out; the symptoms which were formerly supposed to denote acute inflammation of the retina being now known to be due rather to choroiditis with effusion. The following case is a remarkable instance of the latency of the subjective symptoms of retinitis:—

“I recently attended a patient who presented well-marked neuroretinitis, whose principal complaint was that he could not distinguish people across the street, and who thought I might perhaps suit him with a different glass to the one he had been in the habit of wearing—and this person was himself a medical man, who, one might naturally suppose, would be more alive to any visual defect than a lay person.”—P. 86.

In the lecture on the Choroid we find an account of a disease not much noticed in English works, the *choroiditis hyperplastica*, or *parenchymatosa*. The following observations will be read with

interest by those who have had an opportunity of seeing the ophthalmia which has so frequently destroyed vision in the recent epidemic of purpuric fever:—

“There is a form of choroiditis peculiar, I think, to childhood, which corresponds in many respects to this choroiditis hyperplastica of Stellwag, but in it there is no absolute tumour; the entire fundus appears to become plastered over, as it were, with a layer of lymph, or new cell growth, and presents, even to the unassisted eye, a yellowish-red or greyish-yellow reflection, very similar to, but duller, than the appearance seen in fungus hematodes. There is little or no external indication of the internal mischief, and the peculiar reflection or the blindness may, perhaps, be the first and only symptom to attract attention to the eye. The iris soon becomes slightly discoloured, its pupil immobile, and the eye acquires a blind look, an appearance not easy to describe in words, but soon practically recognized by the observant student. I have seen this choroiditis most frequently after severe scarlatina and measles, and have observed its occurrence during the recent epidemic of cerebro-spinal meningitis. There is sometimes lachrymation, conjunctivitis, and slight pink zonular vascularity, but there is often an absence of any symptom which would point to the existence of so very grave a disorder. In one of these cerebro-spinal cases which I saw at an early stage there was no reflection from the fundus on ophthalmoscopic examination; the pupil was, however, immobile, though not closed, or even contracted, vision was extinct, and the peculiar yellowish reflection subsequently made its appearance, and finally the globe became soft and phthisical. Such eyes frequently collapse; sometimes, however, they do not even get small, but their further growth and development is completely arrested; and if the individual grows up to adult age the eye appears preternaturally small, the lens frequently becomes opaque or calcareous, and the iris of a greenish-yellow or orange tint. This choroiditis occurs in delicate strumous children during and after severe fevers in which there appears to be blood poisoning. I have endeavoured to ascertain the exact condition of the fundus, but have never yet obtained any very satisfactory results; beyond a straw-coloured or yellowish-red uniform surface there is very little to be seen; neither optic disc nor retinal vessels are visible. Atropine has little or no effect on the pupil, and the unsteadiness of the child, and the incessant motion of the eye, render it frequently very difficult to examine such cases. As a rule, this disease attacks but one eye, and the right eye has been the one most frequently lost in the Dublin epidemic, cerebro-spinal meningitis.”—P. 118.

Rudnew and Burzew have recorded recently the dissection of an eye effected by internal inflammation in the course of cerebro-spinal



meningitis. The anterior chamber was filled by a purulent fluid. The vitreous was inflamed and pushed forward by a purulent exudation between it and the retina. The choroid and corpus ciliare were also occupied by purulent matter, and their vessels indistinct. There was an effusion of blood into the retina, but its several layers were on the whole well preserved. The patient was aged forty-five years; the left eye only was affected.—(Virchow's Archiv: Bd. XLI., s. 84.) The occurrence of tubercle in the choroid, to which recently attention has been called by Cohnheim and Wells, is duly noticed by Mr. Wilson.

The last lecture is on Glaucoma. In this disease the ophthalmoscope has performed some of its most brilliant achievements, and thrown a flood of light on this hitherto obscure affection. Mr. Wilson sides with Graefe as to the inflammatory nature of glaucoma, but notices Donders's neural theory, and the reasons on which it is based. He, however, makes no mention of the more recent researches of Dr. Wegner, which seem to give strong support to the view held by Donders. In this chapter we find a good description of the symptoms and appearances in glaucoma, considered as acute, chronic, simple, and consecutive. Excellent engravings of the depressed optic disc, from drawings by the author, are given; and cases related in which iridectomy was effective in curing this formidable disease.

The work terminates with a copious index, for which the author will receive the thanks of every reader.

In conclusion, we would again most warmly recommend this work to every one commencing ophthalmoscopy. As we have already said, it stands alone in English medical literature, filling up the hitherto vacant space between Professor Longmore's *Aide Mémoire*—which, from its brevity, would be of little use to the beginner—and the more costly and elaborate work of Zander, to which, however, Mr. Wilson's lectures will form a good introduction.

*The Medical and Legal Aspects of Sanitary Reform.* By ALEXANDER P. STEWART, M.D., and EDWARD JENKINS, Barrister-at-law. London, 1867. Pp. 100.

THE object of this treatise is, on the one hand, to recommend the adoption of mandatory legislation upon the many most important branches of the public health question; and, on the other, the consolidation of all previous acts for that purpose.



The writers also treat of the appointment of well educated health officers throughout the kingdom, and the correction of the many evils attendant upon the system of scavengering, sewage, buildings used as tenements for the humbler classes, as well as the management of infectious diseases, of water supply, &c.

“ 1. We require a thoroughly efficient administrative department of government for the superintendence of all matters relating to the public health, and the enforcement of the law on recusant local authorities.

“ 2. The appointment of officers of health, not only in towns, but in the country, and for our ports and harbours, should be compulsory; they should be independent of the local authority, their appointment, the amount of their salary, and their dismissal being subject to the approval of the central department; and should exercise a general supervision of such districts as may be agreed upon.

“ 3. The inspectors of nuisances should always be under the control of the officers of health, and should not be burdened with other and inconsistent duties. Their appointment should in every case be compulsory.

“ 4. There should be an annual return to Parliament of all officers of health and inspectors of nuisances, of the population and areas of their respective districts, of the salaries paid to them, and of the duties they are required to discharge.

“ 5. As a general rule, the officers of health should be specially trained and set apart for that work alone, and be remunerated accordingly, out of the municipal funds or county rates, aided from the consolidated fund.

“ 6. The isolation of those sick of infectious disorders should be enforced by their early removal to—

“ 7. District hospitals or refuges to be provided by the local authorities.

“ 8. The conveyance of such cases in hackney carriages should be everywhere prohibited under a penalty, the same to be strictly enforced against offenders.

“ 9. Carriages for the conveyance of such cases *must* be provided by the local authorities.

“ 10. Disinfecting apparatus for clothes and bedding must likewise be provided by local authorities.

“ 11. We urgently need a well-considered Act, which shall facilitate the acquisition of low house property, and shall empower the Government to grant loans on easy terms, on the security of the new buildings, to those who shall undertake to provide wholesome dwellings for the labouring population.

“ 12. The supply of gas and water should be taken out of the hands of

private companies, and entrusted to public and responsible bodies, in the interest of the consumer.

" 13. It should be made lawful for Boards of Guardians to apply portion of the rates to the providing of convalescent accommodation for those who require, but cannot procure it.

" 14. A strict government inspection should be made during the progress of all works, for the execution of which the Government sanctions the borrowing of money, and before instalments are sanctioned, the inspector's reports and certificates being published."

We commend this work to all who have the health of the nation at heart, as they will find in it a valuable summary of many highly important facts and reports upon this all-engrossing subject, which is important, in the highest degree, not only to the philanthropist but also to the statesman.

*Lectures on the Progress of Anatomy and Surgery during the present Century.* By Sir WILLIAM FERGUSSON, Bart., F.R.S.; F.R.C.S. Edin.; F.R.C.S. Eng., and Member of Council and of Court of Examiners; Serjeant-Surgeon to H.M. the Queen; Professor of Surgery in King's College, London; Surgeon to King's College Hospital; late Professor of Human Anatomy and Surgery to the Royal College of Surgeons of England, &c., &c.

THESE are the twelve lectures given by Sir William Fergusson in the years 1864-5, in his capacity of Professor of Human Anatomy and Surgery to the College of Surgeons. They comprise briefly within their scope the results of his experience in the subjects of conservative surgery (including, especially, excision of the knee), lithotomy and lithotrity, operations on the jaws, amputation, and some admirable reflections on minor surgery, and on operations in general. Each lecture, limited to the brief space of an hour for its delivery, contains, notwithstanding, a vast amount of valuable experience, such as was to be expected from so able a master, such as will well repay perusal. While an hour or two will suffice to peruse the book from cover to cover, there will be found in it so much of the results of a life's work as must make it ever valuable for constant reference and frequent re-perusal.

We shall select a few extracts with a view to show the quality of the work. In some the true modesty of a master mind is

perceptible; in others, the just pride of success, which alike must characterize the truly great; in all, the sound results of large experience commend themselves to the judgment of the reader:—

“After many operations on the adult and on the young subject, I had in a manner forgotten my early knowledge of the position of the bladder in children, and not only was content to make the incisions with a simple scalpel, but had in a measure got careless about some matters of great importance. On the 17th of March, 1849, I had to operate on a boy four years of age at King’s College Hospital. I used a scalpel, as I had often done before, and made the ordinary incisions for lateral lithotomy. A grooved staff with a large curve was the director into the bladder. In making the deepest part of the incision I purposely used the cutting instrument as lightly as possible, with a view to open only a part of the membranous portion of the urethra, and notch the prostate and neck of the bladder. These objects being effected, the point of the forefinger of my left hand was, as usual, placed on the staff, and pushed gently towards the bladder. The finger went on, but I was aware that it had not got between the urethra and the staff. With an insinuating movement (much to be appreciated by the lithotomist who, as I do, professedly makes a small incision in this locality), I endeavoured and hoped to get its point as usual into the urethra and neck of the bladder. But here I felt conscious that I had failed. I was aware that the finger was getting deeper as regarded the depth of the perineum, but that I was not materially nearer the bladder. I could feel a considerable space at the point of my finger, and was convinced that the upper part of the membranous portion of the urethra, as well as the sides above the wound, had given way to the pressure of the point of the finger, and that now, as the latter was getting deeper into the wound, I was only pushing the prostate gland and neck of the bladder inwards and upwards. These parts seemed to recede before the smallest imaginable force, whilst I felt that I could in a manner make any amount of space round the bare part of the staff. I had no difficulty in distinguishing between the surface of this space and that of the mucous membrane of the bladder. Moreover, I knew that I had never crossed that narrow neck which is always felt as the finger passes into the bladder when a limited incision is made. An impression came over me that I was about to fail in getting into the bladder, and I had the idea that, unless I could open the urethra just in front of the prostate more freely, I should possibly never reach the stone. Any additional use of the forefinger of the left hand only endangered the further separation of the prostate and neck of the bladder from the pubes, and I was conscious that the only safety lay in cutting a little more freely on the groove of the staff. This I effected with great caution, and then I could appreciate the passage of the finger as usual



through the prostate and neck of the bladder. The stone was thereafter easily touched and removed; but when all was finished, I was forcibly impressed with the idea that I had nearly failed in the performance of the operation. Here (fig. 44) is the stone itself—one of the smallest I have ever removed by lithotomy. An onlooker might not have been able to perceive the cause of this emergency, but I was myself conscious that I had not reached the bladder, even at a time when the finger seemed deep in the perineum. Happily, the patient recovered, though slowly, in consequence of the lacerated character of the wound, and the formation of an abscess in the left testicle.

“Until this date, I confess I had never fully appreciated this danger and difficulty in lithotomy in young subjects. I had read of the slipping of the gorget in this operation, and become acquainted with the fact that futile incisions had often been made, and with the supposed mistake of the surgeon in cutting when no stone was present; but now a new idea flashed on my mind, and from that time I have never lost sight of it. I have never performed lithotomy on children in public without referring to it. I have observed, since that time, that the subject has been alluded to by certain surgical authors, but I am not aware that it had ever been specially noticed before.

“From all my experience I feel justified in stating my conviction, that most of the cases heretofore related as instances where the incisions for lithotomy have been made, and a stone has not been present, have been examples where the surgeon has failed to reach the bladder from the cause just narrated. Since I have been impressed with this view, I have known of cases where, death having followed the incisions, the stone has been found in the bladder at a *post mortem* inspection; and I have also heard of others where the stone has been successfully extracted at a second operation, after the first wound has been allowed to heal.

“The mishap is much more likely to occur than most surgeons imagine, and my opinion is founded upon the following grounds:—The size of the wound is necessarily limited, so that the forefinger of the left hand in a manner fills it. The perineum is much deeper in proportion in the child than in the adult, and, in addition, all the material is loose, lax, and loaded with fat. The circumstance that the bladder is more abdominal than pelvic in early life has been greatly overlooked. The slender tissue of the membranous portion of the urethra, the narrowness of the tube (both contributing to the facility with which the circumference may be torn through), and the small size of the prostate (rendering its discrimination difficult), all constitute peculiarities which are not conspicuous in the adult. In the latter there are room, development, bulk, mass, and a final wall of prostate and bladder, which may be all said to be deficient in the child.

“From these data I have long since come to the conclusion, and have



long taught in my lectures, that lithotomy in children, whilst comparatively free from danger as regards the final result, is by no means so free from difficulty or the risk of failure. The safety of result has been mistaken for simplicity of execution; but I hope that what I have now stated may be a warning to the young lithotomist. It may naturally be asked how the danger referred to can be avoided. My answer is, that more care than is usually given should be devoted to the operation, and that as the surgeon cuts into the membranous portion of the urethra and neck of the bladder he should never push the point of his forefinger onwards unless he feels certain that he has it between the staff and the wound."

On the question of free cutting, or slow dilatation of the neck of the bladder, he gives judgment in the following lines:—

"These latter remarks, it will be perceived, bear upon a very interesting and much controverted question as to limited or free incisions in the neck of the bladder. I doubt if this question will ever be settled, but on my own part I have no hesitation in declaring my preference to a limited incision, for I believe as implicitly in dilatation here as I do in the neck and mouth of the uterus in parturition, even though the latter is effected by nature, whilst the former is by force on the part of the surgeon. I am so strongly impressed on this point that I do not object to the term laceration which has often been applied to the somewhat forcible extraction of a stone; for my opinion is that laceration, provided a margin of prostate is left, is 'safer than the so-called free incision which fairly divides the left lobe of the prostate and runs into the membranous portion of the bladder. But in advocating a limited incision internally, I am equally convinced that a free external wound is of importance, for it greatly facilitates the deeper and more delicate part of this operation. When the distance between the surface and bladder is great, partly from obesity, partly from enlargement of the prostate, if a free incision be made, the knuckle of the forefinger may be buried in it, so that the point can be more readily placed within the prostate or the bladder, whilst it permits the more free and safe use of forceps, both in passing them into the bladder and in extracting the stone. Without this free space, there is a risk, in introducing the forceps, of passing them between the bladder and pubes, or between the bladder and the rectum. Moreover, in extracting a large stone, there is a freedom given to the leverage of the forceps, which, whilst much appreciated by the accoucheur, has been too little thought of by the lithotomist.

"The difficulties of lithotomy in the adult are, I apprehend, largely of the surgeon's own making. He limits the wound perhaps, making it too

narrow throughout, particularly on the surface; or in not penetrating into the bladder, whereby he runs the risk of the blunder of making a space between the pubes and prostate, that which in my lecture last year I endeavoured to impress emphatically as the grand source of failure in the operation in children; or he places it too high in the perineum, thereby setting his work too much in that dangerous strait, the angle of the pubes; or he does not make a proper use of the forceps either in clutching the stone or in drawing it from the bladder."

Did space permit we would quote the two succeeding pages, but for these we must refer the reader to the book itself.

On the results of lithotomy, in the hands of the most brilliant and successful of its votaries, as compared with lithotrity, the following extracts speak for themselves:—

"The late Mr. Crichton of Dundee, who operated until he was nearly ninety years old, has been, perhaps, the most experienced lithotomist in this country, of the present century. We are indebted to Professor Sharpey for a sketch of Crichton's practice, written by the aged lithotomist himself, and published in the fourteenth volume of the 'British and Foreign Medico-Chirurgical Review.' He had about 200 cases, and of that large number lost only 14.

"The latest writing of a lithotomist may be taken as his last report; and in this sense I may state that Cheselden, having cut in public 213 cases, lost only 20. In my own practice in King's College Hospital, I have cut 100, and of these 15 have died. Mr. Solly<sup>a</sup> has told us within the last few weeks, that of 63 cases in all, public and private, he has lost 14. Crichton's statements included both public and private; and as Cheselden did not publish the results of his private practice, we are entitled to infer that the Dundee practitioner in the nineteenth century was more successful than the reputed hero of British lithotomists in the eighteenth century.

"But, Sir, any humble merit of mine that may be associated with this address and that delivered two days ago, is, in my estimation, now to be told. I can give a list of lithotomy and lithotrity conjoined, which, in as far as I know, has fallen to the lot of few other men in Britain. I have personally by operations treated 271 cases—162 by lithotomy, and 109 by lithotrity. Although having seen little more than half the time of Crichton's experience, I have had 70 cases of the disease more than he had. Of the 271 I have lost 47; and that shows a mortality of something more than 1 in 7—not a bad average as operations for stone go; but lithotrity cases being included, I consider it low indeed. And I have now to state that which I look upon as of high interest in the

<sup>a</sup> Surgical Experiences, 1865.

modern history of surgery. Of these 271 cases, 219 were adults; 110 have been treated by lithotomy, and of that number 33 have died; 109 have been treated by lithotrity, and of that number 12 have died!

“Here, Sir, is a contrast between the two operations of lithotomy and lithotrity as practised by the same person. I refer to it as an indication of the favourable progress of surgery during the time in which I affect to glance at its history. In my own hands, whatever clumsiness or skill they may possess, the operation of lithotrity has been considerably more successful in regard to saving of life than that of lithotomy.”

To pass from this to a domain of surgery almost as important for the brilliant results which it yields, we find the following observations on partial removals of the superior maxilla, so valuable, so truly conservative, and so opposed to the slap-dash school of surgery, that we cannot refrain from quoting them:—

“Most surgeons, I believe, have an impression that when a person is said to have a tumour in the upper jaw, or, to be even more precise, in the antrum, the whole of this cavity, with its walls, is so involved that in any operation for removal there is an absolute necessity that this circumference—the walls of that cavity—must be taken away. Now, it is my opinion that disease in the antrum, beginning in the cavity, as it were, is much more rare than most people think. My impression is, that in many, if not most, instances, the wall of the antrum is the part first affected, and that its cavity is gradually filled by the growth, and then perhaps expanded. Actually, in some instances, so strictly local is the disease that the antrum may be in a manner displaced and compressed, whilst its mucous lining remains without indication of disease. This I have particularly noticed in tumours which have had their origin in the alveoli; and I have seen frequently growths of considerable size here which have projected forwards, downwards into the mouth, and even upwards, and yet have left the antrum scarcely if at all involved. Any part of the circumference of the antrum may be the original seat of a tumour, and if such tumour be attacked by an operation at an early date, I maintain that it may be removed, and the rest of the antrum or jaw be left. If it so happens that the tumour is chiefly associated with the posterior wall or part of the antrum, the diagnosis will be more difficult, and if an operation is performed, the destruction of comparatively sound parts in front must be extensive in proportion; but if the tumour happens to be at any other surface it is, in my opinion of great importance to reserve as much as possible by removing only the offending part. It is, unfortunately, too often needful, owing to the extensive development of the disease, to remove all between the tongue and the eyeball; but cases are frequently met with of a more



limited extent, and if the surgeon follows the practice which I have ventured to characterize as a modern improvement—viz., to interfere at a reasonably early time, so as to arrest the tumour in its onward progress, he may remove the disease, and yet save the greater part of the upper maxilla. In one case the sacrifice of only the inner or nasal wall of the antrum will suffice; in another the front may alone require removal; again, probably the floor of the orbit or roof of the antrum may be involved, or possibly only the lower part of the antrum—that is, the roof of the mouth, with, perhaps, the alveoli. To save the floor of the orbit, as happily may often be done, is in my opinion of great importance; but of all these local operations that I am now advocating, that of removing disease, and at the same time preserving the roof of the mouth, is the one of most importance in my estimation, and where the extent of disease will permit, the surgeon should make every effort to do so. I have known a sound alveolar ridge, a perfect set of teeth, and one side of the roof of the mouth, all sacrificed to get at a comparatively small tumour in the antrum, which could readily have been removed with the sacrifice of only the front wall of the cavity.”

We had marked other pages, *e.g.*, on reducing the size of flaps in amputation, on the folly of sacrificing healthy integument when stretched over tumours, and many other practical hints, but for these we must refer the reader to the book. The Scotch have been said to be deficient in humour. Those who think so may study the woodcut in page 289, and recant their error. We say no more.

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*On Joint-Diseases; their Pathology, Diagnosis, and Treatment: including the Nature and Treatment of Deformities, and Curvatures of the Spine.* By HOLMES COOTE, F.R.C.S., Surgeon to St. Bartholomew's Hospital; Consulting Surgeon to the National Orthopædic Hospital; Examiner in Surgery at the Royal College of Physicians; Membre Correspondant de la Societe de Chirurgie de Paris, etc.

It must always prove a source of satisfaction to read such a book as this one. The results of the matured experience of one who has been for so lengthened a period the surgeon of a large hospital like St. Bartholomew's, and who has utilized the vast opportunities thus afforded him, will naturally be regarded as of immense practical importance. Indeed, this volume throughout is rather



the record of the personal experience of the author, and the rules of practice he has thence deduced, than a systematic treatise on the subject, and in this, we conceive, lies the great value of the work.

Throughout the book Mr. Coote insists that in the treatment of diseases of joints, surgeons should rely more upon the enforcement of complete rest, and of gentle, long, and patiently-continued mechanical treatment, and less upon the more violent surgical procedures. In the preface he expresses his regret that there seems to be a growing inclination for the early performance of operations, and particularly of resections. We agree with Mr. Coote in believing that very much may be done for diseased joints by carefully conducted general and local treatment, but at the same time we consider exception may be fairly taken to the conclusions which are implied in the following paragraph:—

“We are, therefore, justified,” he states, “in concluding that most of these cases, properly and timely treated, will recover, although they may be troublesome and tedious. Surgeons in public practice should not despond of success, nor fly at an early date to so serious a measure as amputation or the resection of a joint, because the parts do not speedily become sound. We dare not act so in private practice.”

We have no occasion to act so in private practice. The conditions of the two cases are by no means parallel, for while surgical interference may become absolutely necessary in an hospital patient from circumstances with which every hospital-surgeon is aware, the ample means at our disposal in the treatment of similar cases occurring amongst the rich may render the adoption of such a course wholly unnecessary and unjustifiable, and in the end the patience and skill of the surgeon may be rewarded by effecting the restoration to health of his patient.

Mr. Coote objects, and very properly objects, to any interference with a diseased joint whilst the malady is in the active stage. He prefers that the limb should always be left in the semi-flexed position assumed by the patient as the most comfortable, and considers that any attempt to straighten it under such circumstances is faulty in principle, and only calculated to do injury by pressing together highly sensitive parts, and thus aggravating the suffering. Indeed, he proceeds to say:—

“I am no advocate for the forcible extension of joints, whether contracted or deformed, except in a few cases, where some very unyielding

obstacle to *redressement* has to be suddenly overcome. The practice is of use after cases of rheumatic disease, when a bar of new bone prevents the proper movements of the limb, or where osseous union holds the bones in some abnormal position after all morbid action has subsided."

We remember being much struck one morning on hearing M. Verneuil, during his clinique at Lariboissiere, stating that his usual practice was to straighten limbs when in this condition, even when the inflammation ran pretty high. He assured those present that invariably the patient experienced great relief when the limb was made straight, and that the spasm was thereby completely removed. He was speaking more particularly of the knee-joint, and he justified the use of a considerable amount of force in effecting the object. Whether in principle or practice there could be no wider discrepancy than this from the views inculcated by Mr. Coote. In the article on the subject in "*Holmes's Surgery*" views similar to those of Verneuil are likewise set forth. With reference to the pathology of joint affections, the author states that the disease has its starting-point either in the synovial membrane or in the cancellous structure of the bone itself:—

"The expression, 'ulceration of cartilage,' as meaning a particular disease, is becoming, on many grounds, abolished. We include such cases under the head of 'Inflammation of the Joint;' the inflammation involving the head of the bone and all the tissues proper to the articulation. And when such symptoms arise, as were once supposed to indicate ulceration of the articular cartilage, we know that a layer of these highly-sensitive granulations have sprung from the surface of the inflamed cancellous head of the bone, and that they are actively engaged in removing the articular cartilage from its attachment; but not as a progressively destructive process. The removal of the cartilage is but the step to fibrous union of the ends of the bone, and the completion of a cure by ankylosis."

The author discusses, in the next few chapters, the particular diseases affecting joints in different situations in the body, and amongst the rest dwells at some length on hysterical affections, the doctrine of which he considers, to a large extent, overdone. Mr. Coote affirms that the more accurate pathology of the present day has taught us the existence of disease where none was heretofore suspected, while it leads an experienced surgeon to the conclusion, "that the word 'hysterics' has been often used to cover a hasty examination and shallow experience":—

"If," he states, "hysterical affections of joints are common in practice, I have been unfortunate in having had but a limited experience. Some cases of 'hysteria' of the knee have turned out, where we have had opportunities for examination, to have been disease of the cancellous tissue of the bone, with deep-seated and partial detachment of the articular cartilage. This spot, though small in extent, and easily overlooked, even in *post mortem* examination, may be the seat of the most acute pain on pressure; and the flexure of the limb is an almost involuntary act on the part of the patient to obtain ease. Cases of 'hysteria' of the hip have proved instances of chronic rheumatic inflammation, with the usual changes of cartilage and bone. The patient has limped about with the thigh bent until some surgeon, more adventurous than the rest, has given directions that the limb should be forcibly put straight under the employment of chloroform, and kept so by a wooden splint. The result has been that, after severe aggravation of all the symptoms, the limb, in course of time, has been found shortened two or three inches in consequence of destruction of the head and neck of the femur by ulceration."

These observations are, we consider, of much importance, and should certainly lead to the earliest and closest attention being given to the symptoms, often obscure, which attend incipient disease of the articulations.

It will be unnecessary much further to analyze the contents of this most valuable work. In the last chapter, devoted chiefly to the treatment of cicatrices after burns, the same general bias against operative measures, or, at all events, against meddlesome surgery, is manifest as in other parts of the book. The author believes that most cases of contraction from burn admit of relief by the simple means of graduated extension, without incisions of any kind. Experience has proved, he states, that after extension of the integument constituting the cicatrix, the contractile matter, to which these frequently hideous deformities are due, becomes absorbed, and is permanently removed, the skin to a large extent resuming its normal pliancy.

We again repeat we have perused this book with both pleasure and profit, and can heartily commend it to the careful consideration of every practical surgeon.



*Excision of the Knee-Joint: a Description of a New Apparatus for the After-Treatment; with Illustrative Cases.* By PATRICK HERON WATSON, M.D., F.R.S.E., F.R.C.S.E.; Lecturer on Surgery, Royal College of Surgeons' School; Surgeon to the Royal Infirmary and Chalmers's Hospital for Sick and Hurt.

DR. P. H. WATSON has published this volume with a view of bringing before the notice of the profession a method devised by him of treating cases of excision of the knee-joint after operation. He does not pretend to deal, except incidentally, with the more general questions of what is the best mode of operating, and what cases are more suitable for excision of the joint, and which may be more suited for amputation. He starts with the assumption that the operation is a surgical procedure of acknowledged merit, saying:—

“I should prefer, so far as I am concerned, to accept it as a settled point, that excision of the knee-joint is a good operation, one which has, in so many different hands, yielded such successful results as to render its admission into the common list of operations, not only defensible as something more than an experiment, but justifiable as being an accepted procedure of modern surgery.”

Dr. Watson rightly considers that one of the chief obstacles in the way of the more general introduction of this operation is the great difficulty often experienced in the after-treatment, and all surgeons who may have occasion to perform excision of the knee-joint will feel grateful to anyone who can give, what Dr. Watson professes to afford, a new apparatus facilitating greatly the after-management of such cases. Our author's plan has the great merit of simplicity, and without entering into full details, it may be described briefly as a suspension apparatus. A Gooch's splint from the nates to the heel, is applied to the posterior part of the limb, hollowed out laterally opposite to the joint. An iron rod hooped at the knee, is applied on the front of the limb from the fold of the groin to the foot, along the dorsum of which it runs to the toes, at a suitable inclination. This apparatus, having been placed in situ, is retained by means of plaster of Paris or paraffine bandages, applied immediately after the operation, and the limb is then swung in a Salter's cradle. A hook attached at the ankle to the iron rod furnishes the means of suspending the limb. The site



of operation is left exposed by the hollowing out of the posterior splint, and the arching of the iron rod over the joint.

Dr. Watson points out that in the ordinary forms of splint, while the leg is maintained in perfect immobility, the motions of the trunk cannot fail to act on the femur, and through it disturb the wounded surfaces, impeding their union, and causing deformity, besides the greater tendency to the formation of bedsores from the difficulty of relieving the pressure on the back. His apparatus, he contends, removes these difficulties, and the entire limb moves as one mass with ease, while there is no leverage of the femur acting on the excised joint. The patient can thus readily shift his position in bed, and sit up with comparative ease. Indeed, in one of the twelve illustrative cases brought forward, the patient was found on the day following the operation sitting up in bed combing her hair, a position she had assumed without assistance. Dr. Watson's apparatus, judging from his own experience, and the results which have been obtained by others through its use, seems largely to meet the desiderata required in any apparatus for the after-treatment and excision of the knee-joint, which the author lays down to be—

“1. Commensurate adjustment of the sawn ends of the bones not only at first, or at each dressing, but constantly throughout the whole period of after-treatment. 2. Such equipoise of the whole limb, that the thigh bone shall be able to follow the inevitable movements of the trunk without losing its proper relations to the tibia.”

The form of operation employed by Dr. Watson resembles that used by Mr. Jones—namely, an anterior oval flap, the extremities passing well behind the condyles, the patella not being removed—which we believe to be a mistake.

The second chapter of the book is devoted to the consideration of twelve illustrative cases, six of which were successful, the remainder terminating fatally. The first of the fatal cases was one in which there was hemoptysis, and there were also well marked physical symptoms of phthisis pulmonalis, a condition which, we believe, would cause the majority of surgeons to hesitate before subjecting a patient to excision of the knee-joint, an operation of great severity, which must necessarily be followed, even in the most favourable event, by a prolonged confinement. In Case X. the fatal issue is ascribed to pyemia, which, the author considers, cannot in any respect be said to be connected with the operation of excision, as

distinguished from other forms of operation. To this view we must dissent, as we cannot but think that if local conditions are of any effect whatever in the production of this frightful malady, the state of the parts after excision of the knee are, *cæteris paribus*, likely to prove an efficient cause. We have here many square inches of the cancellated structure of the tibia and femur, with their patulous veins, bathed in pus, and, in point of fact, out of fifty-five fatal cases recorded by Price, ten of the deaths were due to pyæmia, which is a large proportion.

Chapter III. is composed chiefly of clinical remarks of much practical value. Speaking of the selection of cases the author says:—

“Are there, however, any indications from the successful cases as compared with the unsuccessful ones, whereby we can in anticipation regard the prospects of a given case as better or worse in undertaking excision? I think there are. I am inclined, next to the employment of the operation in cases of accident or injury, to regard its success as probably greatest,—1. When the disease has commenced in disease of the hard textures of the joint, or at least when there is but little chronic change in the synovial membrane; 2. When there is no great burrowing of matter beneath the muscles or in the popliteal space; 3. When the acute stage of the disease is on the decline, or has declined, leaving the patient with no manifest evidence of original defect in constitutional vigour; 4. Where no bedsores already exist, in such a situation as to prevent a dorsal decubitus. But because my experience in my own cases, and in those of others, leads me to such a practical conclusion, I do not think myself justified in deciding that all outside this selected number must necessarily be given over to amputation.”

Dr. Watson institutes an interesting comparison between excision of the elbow and knee-joints and the reasons which necessitate the attainment of a widely different result in the two cases; in the elbow-joint a movable articulation being the great desideratum, while in the other perfect bony ankylosis is what is required—a bond of union namely—capable of sustaining the weight of the body in progression without yielding.

In speaking of the instruments necessary for the operation, Dr. Watson evinces the tact and skill of a true surgeon, who relies more on his head and his hands than on complicated instruments, which are sometimes but an excuse for want of skill, but we cannot coincide in his preference for the common amputation-saw to a frame-saw such as Mr. Butcher's:—

“Various ingenious devices have, however, been recommended and

employed by others in this extremely simple operation for dividing the osseous tissues. Among these, Mr. Butcher's saw, Symovsky's saw modified by Luer, the old double-toothed saw of Moreau, and the chain saw recommended by the late Dr. Jaffray of Glasgow, in his edition of Park and Moreau's *Works on Excision of the Joints*, specially deserve mention. There can certainly be no objection taken to their employment if the section of the bone were more easily or nicely effected by means of them than by the common amputation-saw. But as one and all of them are less easily manipulated, and there is no evidence in favour of their effecting this work more smoothly, I cannot conceive why instruments, certainly well suited for the key-hole work or the pattern sawing of the cabinetmaker, should be imported into the armamentarium of surgery, or made of such great moment in the performance of an operation which requires neither sections in curves, in zigzags, nor in dovetail patterns."

This book is the work of a thoroughly practical surgeon, and contains much useful and interesting information. We should advise everyone likely to perform the operation of excision of the knee-joint to read it carefully.

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*Medical Students of the Period: A few Words in Defence of these much-maligned People, with Digressions on various Topics of Public Interest connected with Medical Science.* By R. TEMPLE WRIGHT, M.D., &c. Blackwood and Sons. Fcp. 8vo, pp. 170.

It has so long been the custom to attribute all sorts of folly, and even worse, to medical students, that we have learned to treat the so doing with contempt, being quite satisfied that the students, of the present period at least, could well afford to bear with good humour the jokes and gibes so freely launched at them; but we confess it often fills us with indignation when we hear of vagabonds who have fallen into the hands of the police, calling themselves medical students, and hoping to gain thus some consideration because of the character for general licentiousness of the class to which they pretend to belong. The plea is, as a rule, as false as the assumption on which it is founded, and we are glad to know that it is coming to be regarded far more as a reason for increasing the severity of punishment than for its mitigation. The work now before us was undertaken by its author for the purpose of showing the true character and nature of the pursuits of medical students. We hope it may be very generally read, as well by students as by those about to become



students, and by their friends and the public at large. Students will find in it a high ideal placed before them, at which they will be stimulated to aim; their friends and guardians will learn much of the course to be pursued by those anxious to derive the fullest benefit from their studies; and the public at large will be enabled to form a correct estimate of a class whose duties, though often of a disagreeable character, are performed with such self-devotion and thorough honesty as to fully justify the description given of them by Kingsley, as "noble and conscientious young men."

The book consists of twelve chapters, and describes with accuracy the life of students attached to the London schools, introducing sufficient details to make the account interesting without being tedious, even for the non-professional reader. The lecture theatre, the dissecting room, the laboratory, and the hospital, are described in succession; then "Medical Student's Leisure Hours;" and finally, "Our Diplomas, and How we Read for Them," which, with some very appropriate and admirable remarks on the London University and medical education generally, closes the volume. We trust a new edition will soon appear, in which the Dublin and Edinburgh schools will also be fully described.

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*A Winter in Paris; being a few Experiences and Observations of French Medical and Sanitary Matters, gained during the Session of 1865-6.* By FRED. SIMMS, M.B., Lond. London: Churchill, 1866. Fcp. 8vo, pp. 151.

THIS little volume gives an account of the hospitals of Paris, both general and special, of the school of medicine and the method of education, and a notice of the sanitary arrangements. In speaking of the several hospitals the author describes the forms of disease and the most remarkable points of practice he observed in each, so that visitors to Paris for the first time may learn from Dr. Simms' experience how to select the hospitals where they will find most to interest them, and how they may derive the fullest possible benefit from their visit. We cordially recommend all who think of visiting the Parisian hospitals to take advantage of Dr. Simms' experiences herein recorded.



*The Natural and Morbid Changes of the Human Eye, and their Treatment.* By CHARLES BADER, Ophthalmic Assistant-Surgeon to Guy's Hospital. London: N. Trübner and Co., 60, Paternoster-row. 1868. Roy. 8vo., pp. 505.

*Plates illustrating the Natural and Morbid Changes of the Human Eye.* By C. BADER, &c.

*Die Optischen Fehler des Auges mit-ihren Folgen Asthenopie und Strabismus.* Von JOHN ZACHARIAH LAURENCE, F.R.C.S., &c., Aus dem Englischen ins Deutsche übersetzt, and mit erweiternden Zusätzen versehen von Dr. AUGUST KARST, Praktischer Arzt zu Kreuznach. Kreuznach: R. Voigtländer, 1868.

*The Optical Defects of the Eye, and their Consequences, Asthenopia and Strabismus.* By JOHN ZACHARIAH LAURENCE, F.R.C.S.I., &c. Translated from the English into German by Dr. August Karst.

*Observations on the Nature and Treatment of Polypus of the Ear.* By EDWARD H. CLARKE, M.D., Professor of Materia Medica in Harvard University; Member of the Massachusetts Medical Society; Fellow of the American Academy of Arts and Sciences, &c., &c. Boston: Ticknor and Fields, 1867.

MR. BADER'S work is divided into eleven chapters, the subdivision of the matter being according to the structures involved; each chapter is prefaced by a brief anatomical description, and allusions to the development and the congenital anomalies of the parts referred to, the remainder of the chapter being devoted to the morbid conditions and their treatment.

It is only within the last few years that the laws and theories respecting the origin of strabismus have been thoroughly investigated and, we think, satisfactorily explained. It is now established and pretty well known that convergent strabismus is due in the majority of cases to hypermetropia, which latter is an anomaly of refraction discovered and explained some few years ago by Donders. Mr. Bader states that about 95 out of every 100 cases can be traced to this cause.

"The origin of strabismus in hypermetropic persons is thus explained. To read or to look at near objects for a prolonged time requires a certain power of accommodation to keep up the necessary curvature of the crystalline lens, and a proportionate amount of power of the external

muscles of the eyeball to maintain the requisite convergence. Accommodation and convergence go hand in hand. Strong accommodation is necessarily accompanied by strong convergence. Hypermetropic eyes, to be able to see distinctly, use more power of accommodation than emmetropic eyes, and simultaneously converge more. While reading type held at a distance of 12" healthy eyes are directed to a point 12" distant: but hypermetropic eyes to read at the same distance have to accommodate and converge strongly; and though the eyes are directed to a point which lies at 12" distant there is a great tendency to converge for a nearer point, as may be seen if one eye is excluded, but not closed, while the other looks at the object. The excluded eye, as a rule, at once converges too much. If vision of both eyes is accurate, *then the tendency to use both (to maintain binocular vision)* is so strong that both remain properly directed, and no strabismus arises. Though even then we may find one of the eyes squinting for a few moments, just when commencing to read, and again when 'the eyes get tired.'

"The occurrence of strabismus is facilitated by diminution of the acuteness of vision of one eye. The second eye, if only one is used, follows the tendency to too great convergence while the other is directed to the object. Diminished acuteness of vision of one eye may be the result of a high degree of hypermetropia, or of alterations in the refracting media, e. g. opacities of the cornea, &c., &c.

"Looking at objects placed laterally, or reading with the book held to one side so that only one eye is used, allows the other eye to follow the tendency to too great convergence.

"The convergence of hypermetropic eyes is facilitated by the globular shape of the eyeball admitting of greater mobility, and particularly by the large angle which the visual line makes with the axis of the cornea. The greater this angle the more readily does the eye follow the tendency to strabismus."

With respect to the operative treatment of squint the author remarks in his preface, the only part of the work where any allusion is made to the labours or achievements of others, "the two methods of operating most frequently adopted are that termed the subconjunctival method, and that by which an incision is made into the conjunctiva over the tendon, the latter drawn out of the wound and divided close to the sclerotic, and the conjunctival incision united again by a suture. The latter mode of operating, known as v. Graefe's method, is generally practised on the Continent, and has found advocates in this country." This method has been practised, and, as our readers are aware, advocated in the pages of this journal by Sir William Wilde more than a quarter of a century ago. The

whole of this chapter on the "external muscles of the eye-ball" is most interesting and replete with information of no ordinary kind; both it and the chapter on "the eyeball," are eminently instructive, and contain an able summary of the modern doctrines and discoveries relating to refraction, accommodation, and muscular agencies and anomalies. Those unacquainted with Donders's great work "On the Anomalies of Accommodation and Refraction of the Eye," translated by Dr. W. D. Moore of this city, will do well to study in the work before us, an admirable epitome of Donders's views and labours on these subjects.

There is a very troublesome class of cases termed generically asthenopia, occurring mostly in females; the symptoms of this affection are well known, but not so the true nature of the malady. The symptoms we allude to are pain in the eyeball or feelings of fatigue on application of the eyes in reading, or fine-working, or dimness or disappearance of the letters of a book after a certain interval, so that the individual cannot continue to read or sew, &c., for more than a brief space of time, or has to pause frequently, cease the occupation, close and rest the eyes for a short time, after which the occupation may be again resumed to be again laid aside after a while. Such is the pain and uneasiness experienced occasionally that some individuals affected with this malady are doomed to complete idleness. This condition depends upon either insufficient action of the internal recti muscles (muscular asthenopia), so that the requisite convergence of the optic axes necessary for proper binocular vision cannot be maintained, or else upon debility and insufficient action of the ciliary muscle (accommodative asthenopia) so that the proper focus or adjustment of the dioptric apparatus of the eye cannot be maintained for more than a certain length of time; anomalous refraction also often exists. Mr. Bader's work contains full and clear information on these matters.

The chapter on "the cornea" contains a good description of astigmatism, together with the method of recognizing and correcting that anomaly; a few examples are given.

The operations for the removal of cataract described in this work and according to the preface therefore recommended are: the old flap extraction, the scoop or traction extraction, linear extraction, reclinatio, or couching and discision or removal by solution. We confess to some surprize on finding in this list the now exploded operation of reclinatio, and at the omission from it of v. Graefe's modified linear extraction; this latter operation, although largely



practised by others, may not be approved of by Mr. Bader, or he may consider it still *sub-judice*—but even granting this we believe the space devoted to reclinatioin would have been much more profitably occupied by a description of v. Graefe's new method. We must conclude that as Mr. Bader recommends couching he also practises it, notwithstanding his avowal that half the number of cases operated on in this manner terminate unfavourably. We always experience feelings of regret in seeing this operation described in manuals or text books; it is comparatively easily executed, and therefore very likely to tempt the inexperienced; we would rather keep the student in ignorance of such an operation, or if it be necessary to allude to it, it should be mentioned only to be condemned. We have been disappointed at the complete absence in this chapter on "the crystalline lens" of all statistical information. Recollecting Mr. Bader's residence in and connexion with the Royal London Ophthalmic Hospital, where about 250 cataract operations take place annually, as well as his present position in Guy's Hospital, we had hoped he would have published the results of his very numerous observations, and have given in the present volume some statistical tables on the final results of cataract operations; we had also looked forward to some statistical inquiry into the subject of glaucoma and iridectomy analogous to the tabular statement published by him in one of the early numbers of the *Ophthalmic Hospital Reports*. The only information afforded on the results of cataract operations, is that contained in the following general remark:—"Where the cataract has been removed from the eye, out of every 100 eyes certainly 85 have obtained useful vision, while only about three per cent. have lost vision completely." Capsular and neoplastic membranous opacities frequently supervene in the pupillary area upon cataract operations, and it is often very difficult to recognize these causes of indistinct and impaired vision; they are, however, readily seen by means of focal illumination. Mr. Bader takes advantage of this circumstance in their removal, and while operating on them has an assistant to focus the light from a suitably placed lamp by means of a convex lens on the pupillary space; we can recommend this as a very practical suggestion, it will be found very useful in dark foggy weather or in badly lighted apartments.

Mr. Bader was, we believe, one of the first to introduce into Great Britain the doctrines held in Germany respecting glaucoma and was we think one of the most active in establishing the opera-



tion of iridectomy for the relief of that disease. As house surgeon and clinical assistant for several years at the great English National Eye Infirmary—the Royal London Ophthalmic Hospital—he had vast opportunities for clinical study, and as the museum of the hospital can testify, abundant material for pathological research, he also enjoyed the rare privilege of witnessing in patients under his own immediate control different methods of treating glaucoma adopted by some of the leading ophthalmic surgeons in London, and of contrasting the results of each line of treatment. As Mr. Bader's great experience must therefore be of no ordinary kind, and as the subject of glaucoma and iridectomy is one of great importance to us all, both in a physiological and in a surgical point of view, the interests of science and of our readers may perhaps be best consulted by giving some extracts from the author's work, and communicating his matured convictions on these matters; we regret our space does not allow of more extensive quotations.

At page 390 it is stated:—

“Formerly the term glaucoma was applied to the last stage of the disease only, viz., that in which the pupil had become fixed, irregular, and dilated, its area greenish, the ciliary vessels enlarged, the eyeball of stony hardness, and vision lost, &c. With our improved means of diagnosis we can discover the signs of glaucoma in persons with apparently perfect sight.

“The term glaucoma is at present applied to a series of morbid changes of the eyeball; the most prominent of which and apparently the one which causes nearly all the others, is an increase in the tension of the eyeball.

“This increase of tension, or, in other words, the abnormal resistance of the tunics of the eyeball to the touch, is attributed to an increased amount of, and to changes in the contents of the vitreous chamber, which give rise to disturbances in the circulation, nutrition, and functions of the textures of the eyeball. No satisfactory explanation can as yet be given of the primary cause of the increased tension; whereas most of the subsequent changes in the textures of the eyeball are readily explained by reference to it. These changes, in the majority of cases, are accelerated by attacks of inflammation, which either appear suddenly with remissions, or as chronic inflammation, with slight exacerbations. These attacks of inflammation themselves are symptoms of disturbed tension.

“Their occurrence, succession, and rapidity seem to depend, in a great measure, upon the power which the eye possesses of adapting its nutrition and circulation to the disturbances occasioned by the increased tension.”

The following few extracts are selected from a very lengthy and complete enumeration of symptoms:—

“*The increase of tension of the eyeball* is, as far as is known, the earliest perceptible symptom of glaucoma; it may precede most of the others for some years.

“The tension, though remaining above par, varies in degree at different periods; and likewise varies in its effects upon the different structures. A retina, for instance, may have become completely paralysed by pressure, while the sensibility of the cornea and the shape of the pupil, &c., are but little altered.

“The tension increases suddenly during an acute attack of inflammation.

“The hardness of the glaucomatous eyeball reaches its height soon after vision is lost, and continues for a long period.

“As one of the later and rarer changes in the blind glaucomatous eye must be mentioned a fluid condition of the vitreous substance with dislocation of the chalky crystalline lens and a decrease of tension to T—2. The tension of the glaucomatous eye, after removal from the orbit, sinks below par in some instances; in others it remains unaltered.

“In many cases the tension is reduced to the normal degree soon after iridectomy, and at a later period it may sink below par.

“In another series of cases the tension remains a little above par after iridectomy; whereas in glaucoma, complicated with attacks of profuse hæmorrhage into the vitreous chamber, it often is not altered at all, or only at a late period.

“The same has been observed when, in young persons suffering from glaucoma, the iris has been much pushed forwards previous to the operation.

“If a well-performed iridectomy does not reduce the tension, a second operation should be tried: this sometimes succeeds in controlling the tension.”

“*In the choroid* we observe—(1.) Hæmorrhage (? from impeded return of blood). (2.) Anæmic spots. (3.) Atrophy extending (as in the retina) from the ora serrata backwards. (4.) Staphylomatous changes in the atrophic parts.

“The hæmorrhage frequently occurs in the equatorial region and in the region of the yellow spot. The blood is accumulated in the outer layers of the choroid, and between the latter and the sclerotic.

“These blood-spots, when viewed with the ophthalmoscope, appear as black or brown, roundish, ill-defined patches, surrounded by the natural red reflection from the choroid; not unfrequently they are situated close to atrophic portions.

“Only after operations (iridectomy, extraction of cataract, &c.) has the

hæmorrhage been so great as to separate the choroid nearly completely from the sclerotic.

“The anæmic spots, as seen with the ophthalmoscope, appear roundish, white, well-defined, and in groups. They are mostly observed in the region of the yellow spot, and near the optic disc.

“The staphylomatous atrophic portions of choroid (and other tunics) are usually found in front of the equator, between it and the ora serrata, and by preference behind the insertions of the muscles. Viewed with the ophthalmoscope, they have a pale red colour, which is the more marked the greater the atrophy of the choroid. This form of atrophy differs from other forms, on account of the frequent absence of pigment patches round the atrophic portions.

“Microscopic examination of the choroid in chronic glaucoma shows the large veins and the capillaries gorged with blood, and much dilated.

“The stellate pigment appears normal round the optic disc, as well as in most other parts of the posterior half of the choroid. From the equatorial region to the ora serrata it is thin and atrophic in some, and completely missing in other places. The hexagonal cells round the optic disc appear normal, or nearly so as regards size, shape, and pigmentation. They are more altered nearer the ora serrata. Upon the atrophic parts of the choroid they are missing, near these points they appear rugged in some, and round and unusually large in other places. Some are filled with pigment granules, whilst others contain but few, or are entirely empty; many of the granules themselves appear abnormally large. Colloid globes or globules, disarranging the regularity of the cells, are found in a few cases only.

“The changes in the blood-vessels and in the pigmentation are in all cases most conspicuous from the equatorial region to the ora serrata. The texture of the choroid is rotten.”

“*Blood-spots* (so-called capillary hæmorrhage) are met with in every glaucomatous retina. They occur more frequently along the ora serrata, and more rarely round the optic disc and yellow spot. Only few may be found in simple or chronic glaucoma, whereas a great number may appear in acute glaucoma, or after sudden diminution of tension (as after iridectomy).”

“Blood-spots are an unfavourable complication, and often impair or even destroy the benefit derived from iridectomy; especially if they are large and near the optic disc, or at the yellow spot.

“They have occurred months after the iridectomy, and without the recurrence of other glaucomatous symptoms. Patients suffering from renal disease are especially liable to them.

“Those familiar with the brilliant red colour of the choroid in a fair and healthy eye must have been struck with the turbid or hazy appearance of the choroid in a similarly coloured eye when glaucomatous. From



dissection it appears that the destruction of the retinal elements, together with the presence of numerous pigment molecules and débris of blood, is the cause of this abnormal absorption of light.

"Clots of blood and opacities in the vitreous chamber, as well as hæmorrhage between the choroid and retina, or between the choroid and sclerotic, may also prevent our seeing the retina, optic disc, &c.

*"Dissections of numerous Glaucomatous Retinæ removed from the living body.*

"The retina appeared in all cases transparent to the naked eye. In two cases of chronic glaucoma the tint peculiar to the region of the yellow spot was no longer perceptible. In all cases of chronic glaucoma small round blood-spots were observed, and most frequently near the optic disc. Numerous blood-spots were found in acute glaucoma, especially along the ora serrata (and some between the choroid and retina, beneath the most depending equatorial part of the retina, with streaks of blood hanging into the vitreous chamber).

"The texture of the retina was found to be very rotten in chronic glaucoma, particularly so at and near the ora serrata; in some places it could only be removed in small shreds."

"The increase in the number of the capillaries of the retina was remarkable even along the ora serrata, where the other retinal elements appeared reduced to a semitransparent amorphous substance. Everywhere did the capillaries appear enlarged and varicose with portions of their walls bulging out so as to form pouches (aneurismata) of varying size. A few of these pouches were filled with a black, brownish, or yellowish amorphous substance. The veins were varicose in many places. A loss of substance in their inner coat with a bulging of the thus weakened wall were frequently observed.

"Several times perforation of the lower or lateral wall of a vein could be demonstrated together with an accumulation of blood in the adjoining retina.

"The large veins ceased abruptly at the choroidal margin of the cupped optic disc; in the cup they appeared collapsed in some, and adherent to the walls of the cup in other eyes.

"The walls of some of the arteries appeared thickened."

With respect to the treatment of glaucoma we extract the following:—

"It has been found that, if glaucoma be left to itself, or be treated medically only, or by inefficient surgical means, or at too late a period, that vision sooner or later is destroyed.

"Most oculists have adopted the operation of iridectomy as a remedy which, in numerous cases has the effect of diminishing the abnormal tension of the eyeball. Every medical man should learn to perform this operation. In cases of acute glaucoma, where it is of the greatest

service, and where immediate surgical aid is required, the difficulties of its performance are but few, for the textures of the eyeball are little altered, provided vision has been useful before the attack.

“The operation is more difficult if the textures are rotten, as in simple and chronic glaucoma with much impairment of vision. The removal of a portion of iris is in itself a most harmless step, and never followed by serious consequences. No excuse exists for not performing the operation in acute glaucoma, especially if vision has been good before the attack.

“Persons who suffer from glaucoma, and whose sight is but little impaired, must be [made] acquainted with the usual course of ‘the disease,’ and with its more serious symptoms. Patients should avoid those things which cause irritation of the eyes, such as much reading, ‘near-work,’ mental excitement, sleepless nights, &c. We should urge the operation of iridectomy if we find the peripheral parts of the retina already impaired, or if attacks of dimness, with increased tension, appear at short intervals.

“Patients who have lost one eye by glaucoma are more readily induced to have the operation performed.

“The longer the operation is postponed the less favourable is the result.

“Secondary changes (mostly of an atrophic character) in the structures of the eye, brought on by long-continued pressure, are not remedied by iridectomy.

“Accidents which may arise during the operation, such as hæmorrhage into the retina, wounding of the crystalline lens, loss of vitreous, &c., diminish much the chances of success.

“As the result of careful examination of the retina, before and from six to eighteen months after iridectomy, properly performed, the following conclusions have been arrived at:—

“(1.) That the operation may be recommended as long as there is perception of light; and, in acute glaucoma, even if perception of light has been lost for a week after the attack.

“(2.) That the usual causes of failure are—advanced structural changes of the optic nerve and of the retina; fresh increase of tension; hæmorrhage, especially in the region of the yellow spot, or into the optic disc; and accidents during or immediately after the operation, as intraocular hæmorrhage, &c.

“(3.) That in the majority of cases the amount of vision is preserved which the patient had before the operation, and that for months vision continues to improve.

“(4.) That the result is the less favourable the more the paralysis of the retina has approached the yellow spot, especially if it has done so more from above and below; or if the sensibility of the region of the yellow spot is so much diminished that the patient, when looking at an object, turns the eye to one side (‘eccentric fixation’).

“(5.) That if we find the aqueous humour turbid, the transparency of the vitreous substance impaired, and the entire retina sensitive, a better result is obtained by iridectomy than if these are clear with a similar amount of impairment of vision.

“(6.) That in acute glaucoma the pain ceases almost immediately. (From four to six leeches should be applied at bed-time to the corresponding temple, if the pain returns soon after the operation.) The external ‘inflammation’ and the turbid state of the media, as a rule, disappear after from ten to fifteen days.

“(7.) That the less the eyes are used for near-work the more satisfactory and lasting is the result of iridectomy.”

In alluding to iridectomy in his preface the author says, “its *modus operandi* is not yet understood, but it has proved the remedy by which the largest number of patients suffering from glaucoma are relieved.” The crystalline lens, he says, “when removed from a glaucomatous eye appears of a pale orange colour (from imbibition of hæmatin).” The youngest age at which the occurrence of glaucoma has been recorded is, we believe, seven years, mentioned by the author. The disease, he remarks, “always appears in both eyes, but rarely with equal severity, or simultaneously. In one case nineteen years elapsed before the second eye became glaucomatous.”

At page 48 there occurs what is evidently an erroneous typographical transposition: “a strong solution of nitrate of silver (3i. ad aquæ 3i.)” is there recommended for psorophthalmia.

A peculiar and we think a novel feature in this work is the complete exclusion of “authorities,” and the total absence from the body of the work of any allusion to individuals; as the author remarks in his preface, “no reference to works on ophthalmological subjects are given in the different chapters, neither are the names mentioned of those whose merit it is to have advantageously influenced the state of ophthalmology by invention of instruments or by original research.” The author does not assign any reason for this omission—for we regard it as an omission; apart from other considerations and the credit due to originality, the coupling of the name of the originator, say of any given operation with that operation serves often as a reminder to the student as well as to distinguish briefly that operation from all others. Mr. Bader’s work is remarkable for its total silence on the merits and discoveries of others, except in its preface; and what student, may we ask, ever reads a preface?



The work embraces a digest of almost every subject within the extensive province of ophthalmic literature, and may be regarded as a faithful mirror of the present very advanced state of ophthalmology; it is especially rich in pathological and physiological information; and will be found very useful by the specialist. We fear, however, that the work will not find much favour amongst the general body of students, and this may be attributed in part to the character and style of its composition; its diction is curt and dogmatic; it is made up of short disjointed paragraphs which, though perhaps pithy and full of information, yet render the whole "dry" and unpleasing in style; the book is composed of a series of bare encyclopedic statements, without any reference to the student's intelligence or any appeal to his sympathies and reasoning faculties. It is, we believe, specially incumbent upon authors who write for students to endeavour to render their style of writing pleasing, their diction fluent, and their language pure and simple; by doing so they will not only write attractively and render their meaning unmistakable, but they will also set a good and wholesome example to their juniors. As an instance of a simple and very attractive style of writing may be mentioned Sir Thomas Watson's *Lectures on the Practice of Physic*.

The text of the work is devoid of all illustration; but there are a series of lithographic plates contained in a separate portfolio-like roy. 8vo cover, together with an explanatory catalogue of 32 pages. Altogether there are ten plates; three are illustrative of the microscopical, healthy, and morbid anatomy of the retina chiefly, one plate represents instruments, and the remaining six plates contain each six chromolithographs of the bottom of the eye, so that there are in all thirty-six coloured representations of the fundus oculi in health and in disease, in emmetropia and in ametropia. These plates cannot be too highly commended, both as works of art and as life-like representations. They belong evidently to the same series as those published by Mr. Bader in the Guy's Hospital Reports. These representations are best seen by artificial light, and the size in which the fundus is figured is nearly the same as that actually seen in the reversed image; in this respect they possess we think an advantage over Liebreich's plates, some of which we cannot avoid considering as magnificent artistic exaggerations. These plates are published in a separate form, and may be purchased apart from the general work; their accompanying catalogue supplies all requisite information; the student and practitioner will find them good

and useful guides, and the teacher will find in them valuable and portable illustrations.

We have to congratulate Mr. Zachariah Laurence on the fact of his little work having been translated into French and into German; his *Optical Defects of the Eye* is the most lucid brief treatise we are acquainted with on the subject, and is in our mind the work most suited for those who, wishing for intelligible, accurate information, have not much time at their disposal for perusing voluminous treatises. We are glad to find Mr. Laurence's merits appreciated as well by the Germans as by ourselves.

Dr. Clarke's observations on non-malignant polypi of the ear are sound practical ones, in which however there is not much of novelty to those at all acquainted with the subject. His paper contains the notes and a tabular statement of thirteen polypi which he removed, together with a careful record of their microscopical character; two excellent plates illustrate the minute structure of these growths. A modification of Sir William Wilde's most admirable, handy and practical polypus snare is figured and described, which we must consign to the region of "author's instruments," for it is more clumsy and does not, so far as we can judge, answer its purposes nearly so well as its original. A novel mode of treating polypus and one which was followed by the best results in the solitary case in which it was tried by Dr. Clarke, consisted in the injection into the substance of a polypus of three drops of the liquor ferri perchloridi. "The growth soon shrivelled up, turned black, and in about forty-eight hours after the injection, dropped out of the ear, in the form of a black mass." It did not reappear.

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*The Surgery of the Rectum*, being the Lettsomian Lectures on Surgery delivered before the Medical Society of London, 1865. BY HENRY SMITH, F.R.C.S., Assist.-Surgeon to King's College Hospital, and President of the Medical Society of London. 2nd edit., 1868.

IN a course of three lectures delivered before the Medical Society of London, the author of this little volume, which has now reached, and most deservedly so, a second edition, treats of some very important disorders of the rectum, and their surgical treatment. The title is rather comprehensive, but the writer explains

that, as he was compelled to limit himself to three lectures, he was constrained to select a few only of those diseases which appeared to him the most interesting, and to which he had devoted a considerable share of attention. In the first place, he dwells upon *Fistula in ano*, and makes some extremely useful observations upon the causes which may render operations for the cure of this disease unsuccessful. He points out that in many instances delay or failure in the healing process is due to the co-existence of strictured rectum with the fistula, and that the connexion between the two has not been much insisted upon by surgical writers. The author's views, as to the reason why after some operations incontinence of feces results, are important. He believes that this will generally be found to depend upon the depth to which the incisions pass, and that when the internal sphincter is deeply divided, as well as the external, this most deplorable occurrence is apt to follow. This view is a reasonable and probable one, and it is fortunate that in most instances it is not necessary for the cure of fistula to divide the parts to the extreme limit of the sinus, and that the incisions may be confined almost entirely to the lower extremity of the bowel.

The second lecture, which treats of stricture, cancer, and polypus of the rectum, is not altered in this edition. There are some additions, however. The matter of the third lecture is more peculiarly the author's own. The method employed in the treatment of hemorrhoids and prolapsus by Mr. Smith has proved, in the hands of that surgeon and in those of others, eminently successful. In the first edition some thirty-five cases are recorded, while in the preface to the second the author says:—"I have now operated upon one hundred and twenty cases without any fatality, or even any annoying result whatever. I am so thoroughly conscious of the safety and value of this plan of treatment that since the last twelve months I have entirely discarded the use of the ligature." Our readers may be referred to the work itself for a description of the improved clamp, as used by Mr. Smith, and the method of employing it. It is not put forward as an original means for curing piles, the author frankly acknowledging that the late Mr. Cusack suggested the use of the clamp and cautery as a means of destroying hemorrhoidal tumours. To Mr. Smith, however, is certainly due the credit of bringing this method prominently before the profession; and showing that internal piles may be thus removed with perfect safety to life, with but little suffering to the patient, and, as regards the ligature, at a considerable saving of time.



The writer of this notice has on three occasions removed internal piles by Mr. Smith's method. Two of these cases were very severe. In all three a most rapid convalescence took place, while the pain complained of during the operation was very trifling. Indeed, so far as our experience has gone, we are in a position fully to corroborate the statements made by Mr. Smith in the following paragraph, p. 117. He says:—

“In numerous instances, when the hemorrhoidal tumour or the prolapsus is large, a week or ten days elapse before the ligatures entirely separate, and as much more time goes away before the patient is able to leave his bed, whereas in by far the majority of cases where the same disorders have been treated by the clamp, the patients have been able to get out and about in from four to seven days. In some cases, even after the first evacuation of the bowels, which is generally obtained by the action of medicine on the fourth day, the patient feels able to get out of his bed, and to walk about.”

Mr. Smith claims for the operation, besides, that the nervous shock is much less than after the ligature, and that secondary hemorrhage, pyemia, and tetanus, are not likely to happen.

We can warmly commend this book, as the work of an able, practical surgeon, to the favourable attention of our readers.

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*On Disease of the Right Side of the Heart.* By THOMAS MEE DALDY, M.D.; Member of the Royal College of Physicians of England; late President of the Hunterian Society. London: Bell and Daldy. 1866.

THE object of this essay is to direct the attention of physicians to the diseased conditions of the right side of the heart. The author believes that the morbid states of this portion of that organ have been unduly neglected, and that pathologists have attached a too exclusive importance to the condition of the left side. He states that, if the muscular structure of the heart, as a whole, be the subject of morbid changes, the right side will suffer more than the left—the right heart, as we understand him, being less powerful both absolutely and relatively to its functions, and being also less advantageously circumstanced than the left with regard to its nervous supply. These views, which possess some novelty, are not, however, supported by any series of *post mortem* observations of the actual condition of the two sides of the heart in cases of disease

affecting the entire organ, while they are at variance with some generally accepted opinions. Indeed, the whole essay, although giving evidence of a considerable amount of ingenuity, and of an extensive acquaintance with general pathology, is deficient in the indispensable element of *post mortem* investigations.

The following is a summary of the opinions of the author, each of the propositions contained in it being the subject of a separate section of the essay:—

- “1st. That feebleness of the right heart, and especially of its auricle (utterly independent of obstruction *a fronte*) is a phase of disease constantly presented to our notice, but not sufficiently observed.
- “2nd. That dulness on percussion to the right of the junction of the xiphoid cartilage with the lower third of the sternum, and the propagation of the heart-sounds in the direction of the right clavicle, conjoined with the derangement of the circulation of one or more distant organs, are the diagnostic signs of an habitually distended right auricle.
- “3rd. That the pathological condition to which I refer, viz., the reduction of the muscular structure of the auricle to something like elastic tissue (not fatty degeneration) is not readily recognizable on necroscopic examination, unless the abnormal distensibility of the auricle during life be carefully borne in mind.
- “4th. That this feeble condition of the right heart is frequently hereditary, and traceable through two or even three generations.
- “5th. That it gives rise to the following definite results :
  - “(α). The habitual congestive head-ache from which many persons suffer through their whole life.
  - “(β). The vertigo so constantly ascribed to determination of blood to the head, but really consequent upon impeded return of blood from the head.
  - “(γ). Deterioration of the brain-tissue (called softening) by impeding the return of blood through the *superior vena cava*, comparable to the results which occur to the tissues of the lower extremities, and of the organs below the level of the heart when the right auricle is unable readily to receive the blood from the *inferior vena cava* ; or, viewed from the other side of the circulation, to the results of embolism, feeble left ventricle, or any other cause interfering with the due supply of arterial blood to the capillaries.
  - “(δ). Mania.”

If the formidable list of evils which are here enumerated could be traced to a distended right auricle the condition would be

certainly one of great pathological importance. The proofs, however, which are offered in support of these somewhat startling statements do not carry conviction to our minds. The fourth proposition, for example, which states that a feeble condition of the right heart is frequently hereditary has exceedingly scanty evidence adduced in its favour. A remark made by the late Mr. Aston Key, which is quoted as bearing upon this question, seems to us to have no reference to Dr. Daldy's view. Mr. Key is stated to have observed that, as a general rule, diseases of the right side of the heart have a congenital origin, while diseases of the left side arise independently of primary defect. We have not access to the context of these observations, which were made in a discussion at the Hunterian Society, which has not been published, but we entertain little doubt that the statement referred to the well-known pathological fact, that while disease of the left side of the heart is much more frequent after birth than that of the right, the reverse is observed in the fetal condition—valvular changes and obstructions resulting from them being then most frequently found in the right side. Nor is the evidence brought forward as the result of Dr. Daldy's own observations of a more satisfactory character. He states that he has been informed by a number of patients, whom he believed to have been affected with weakness of the right heart, that one or other of their parents suffered from some form of dyspnea. When we consider how many widely different conditions of disease may give rise to this symptom, and how frequently it occurs independently of any heart affection whatever, it seems to us unaccountable that the author should have attached any importance to a statement so exceedingly deficient in precision of signification, or should have considered that it could lend any solid support to his theory.

While, however, we believe that some of Dr. Daldy's conclusions have been based on insufficient data, we must, in justice, observe that his essay is evidently the fruit of much consideration of the subject, and is written in a thoroughly candid and earnest spirit.

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*Report on Leprosy.* By the ROYAL COLLEGE OF PHYSICIANS, prepared for Her Majesty's Secretary of State for the Colonies; with an Appendix. London. 1867.

THIS Report, printed by the Queen's printers at the public expense, and occupying more than 300 pages folio, is one of the most



minute and interesting documents ever published on any medical subject; and as such, it demands our particular consideration.

In the year 1863 the Governor-in-Chief of the Windward Islands suggested to the late Duke of Newcastle, then Colonial Secretary, that reports should be obtained from the Colonies, and collated by some professional body in this country, respecting the character and progress of leprosy, which was believed to be on the increase in the islands of his Government. This suggestion met with the approval of the Colonial Secretary, who requested the Royal College of Physicians of London to frame the interrogatories, which it did. These were then transmitted to the West Indian Colonies at large, and to most of our foreign possessions, and the result is the mass of answers to queries and other information in the report before us. This, though given in abstract to a large extent, is yet very voluminous; 250 replies to the long set of interrogatories having been received at the Colonial Office, and transmitted to the College. The Committee appointed by the College consisted of Dr. Budd (Senior Censor), Dr. Owen Rees, Dr. A. Farre, Dr. Gull, Dr. Milroy, and Dr. Greenhow. The report is framed in sections corresponding with the interrogatories, presenting in the first place an arranged selection of the replies under the successive interrogatories, and then giving in like succession the conclusions formed on the subject matter of each interrogatory from a review of the entire evidence. In the foot notes appended to most of the conclusions, the leading results of the observations of MM. Danielssen and Boeck on the several questions discussed are given from the Norwegian Official Report on Leprosy in 1847. In the closing observations several topics relating to the inquiry, which could not be conveniently dealt with before, are submitted for consideration.

The first question, or set of questions, to which answers were returned is this:—

“1—Is leprosy known in the Colony of——? If so, be pleased briefly to describe it as it occurs there—

“*a* Are there several different forms or outward manifestations of leprosy? If so, by what names are they respectively known?

“*b* Are these several forms, in your opinion, only varieties of one common morbid state? or are they specifically distinct diseases, having no affinity with each other?

“*c* Please to enumerate succinctly the more obvious and distinguishing characters of each form of leprosy which you have seen?”

In reply to these queries answers were received stating that in New Brunswick, and in that province or division of North America only, leprosy was known; and that it was known there since 1815; also that it was known in one or more varieties, and for a more or less lengthened time, in Bermuda, Jamaica, Barbadoes, Cape of Good Hope, Sierra Leone, Cairo, Cyprus, Rhodes, Scio, Mitylene, Samos, Crete, Corfu, Salonica in Turkey in Europe, Thessaly, Macedonia, Scutari, Sinope, Persia, China, Japan, Australia, New South Wales, New Zealand, Madagascar, Mauritius, Ceylon, and India.

India continues to be, as it has been for ages, one of the principal seats of leprosy in the world. No province of the empire, from Point de Galle to Peshawur, or from the Indus to the Straits of Malacca, seems to be exempt from the evil, and nowhere certainly might it be more advantageously investigated. Hitherto the subject has excited but little attention either in a scientific or social point of view. It is to be hoped (the report adds) that the present inquiry may lead to a more thorough and systematic examination of a malady which affects so deeply the material well-being and interests of millions of our fellow-creatures, subjects of the British Crown. It were a tedious task to give even a critical analysis of the considerable portion of this report which deals with an Indian empire. Suffice it to say that this portion is more minute and interesting than any other, and the inquirer must read it from beginning to end if he desires to make himself thoroughly up on the subject.

A few short extracts will show the style of the report.

Respecting Palestine and Syria, the report states that a full and accurate account of the disease, as it still occurs in these countries with which its past history is so intimately associated, is much needed. It then proceeds on pages xi. and xii. as follows:—

“It will be seen from the following remarks by Mr. Rogers, consul at Damascus, that the two forms of the disease recognized in that district are—‘1. Baras el Israilly, or Israelitish leprosy, which consists of whitish scales on the skin; and 2. Jezâm, or, Da el Ased, or the lion-like disease, so called from the fierce appearance of people suffering from it; the lips, nose, lower jaw, and eye-lids swollen, and rounded eyes.’

“The first of these two kinds is very rare. I have never seen a case of it, but have heard of two.

“The other kind is quite distinct from it, and may, on more careful and scientific investigation, be found to consist of varieties which have not been particularized hitherto.

"The usual characteristics of the first kind are, the formation of scales over the skin, which peel off like bran or small fish scales, with pains in the limbs, but no ulcerations.

"In the other kind, the nose and upper lip become swollen and shiny; ulcerations form on the face; the hair of the face and head falls off; the voice becomes hoarse; the skin of the face becomes hard, lumpy, and wrinkled; and great pain is felt in the limbs. The nose is gradually eaten away, and sometimes the lips also; the hands and feet next swell; the nails of the fingers and toes ulcerate and fall off; and in some cases not only the fingers and toes, but even the hands and feet, as far as to the wrists and ankles, are eaten away; and sometimes, though rarely, ulcers are formed on other parts of the body.

"Mr. Rogers describes shortly two cases which he had recently seen, and in which the chief symptoms were lupoid ulceration of the nose, with hoarseness of the voice. In one case, 'the hands and wrists are swollen, and there is a constant suppuration from the nails, some of which have fallen off.' In the other case, 'nearly all his fingers are gone; his toes are going by degrees; suppuration continues in both hands and feet.'

"That both the 'tubercular' and the 'vesicular' or 'anæsthetic' forms of the leprosy are known in the district of Aleppo is manifest from the account of Mr. Wortabet, transmitted by Consul Skene.

"It is stated that the disease is not met with at Alexandretta or at Latakia."

In Crete, where leprosy has long, very long, been endemic, it has recently been engaging the attention of medical inquirers. Dr. Brunelli, we are told, was investigating it on the spot when the report was issued; and Drs. Hjorth and Mongeri, "both former sanitary physicians of the island," have written upon it. In the following extract from the description by Dr. Mongeri, notwithstanding the undetermined meaning of certain technical terms applied to diseases, allusion is made, as in Mr. Rogers' communication from Damascus, to the leprosy of the Jews, and it is regarded as one of the forms of true tubercular leprosy:—

"Leprosy is called in the Turkish language *djudam* or *meskin*; by the Cretans *khalassi* or *komagra*, and lepers *khalasmeni*, *komeni* (*gatés*, *coupés*). The principal forms seen in Crete may be classed in three groups. 1. The knotty, tuberculous or elephantine, the leprosy of the Arabians; 2. The squamous, or leprosy of the Greeks; and 3. The white, *tzarath* or leprosy of the Jews. These forms are, however, often blended and combined in one patient, so that it is difficult to dissociate them. The earliest symptom is generally some alteration in the integuments of the face, accompanied at first in some cases with an excessive



sensibility or hyperæsthesia, to be afterwards followed by a more or less complete anæsthesia. Swelling and ulceration of the nasal passages and of the lips, with tuberculous enlargement of the sclerotic and cornea, as well as of the eyelids, ensue, causing much disfigurement and distress. At the same time, or previously, the extremities are usually the seat of divers morbid changes of structure, with disordered or impaired sensibility, and ultimately of ulceration and loss of the phalanges of the fingers and toes, &c. In some patients, the disease appears chiefly in the form of excessive tumefaction of the extremities, or of scattered nodosities or hypertrophic hardenings of the integuments of the body. The 'bouton de Crete,' analogous to the 'bouton d'Alep,' is one of the manifestations of leprous disease. The cerebral and organic functions are usually unaffected."

"But it is not to the Turkish and Greek islands of the Mediterranean that leprosy is confined, as appears from the following communication from Corfu, where, although for so many years under British government, its existence has hitherto scarcely been known:—

"Tubercular leprosy has long existed in the Ionian islands. Dr. Dellaporta described it at the end of last century as he saw it at Cephalonia. 'I have seen it,' says Dr. Tygaldos, 'at Faraclata and Erisso, in Cephalonia; at Karussades, St. Duli, and Leptimo, in Corfu; and also in Zante. It is known under the name of *Λέπρα*. During the 15 years I have practised in the Ionian islands, I have at all times met with cases of the disease.'

"At first the patients exhibit, especially on the face and the extremities, smooth, shining, and oily-looking spots, of a yellowish colour, verging to a brown or livid hue. The affected parts, sometimes sensible, at other times insensible, or with an exaggerated sensibility, are swollen as if œdematous, and there is loss of the hair.

"These spots are succeeded by tubercles of various sizes, at first solid, and afterwards of a pasty or soft consistence, with a reddish livid aspect. As the disease advances, the tubercles attack other parts of the body, as the pharynx, larynx, nasal fossæ, &c.

"As a variety of the disease, I have noted in a patient in the village of St. Duli in Corfu the oily, yellowish, insensible spots, on which bullæ containing a fœtid sanies had formed. Destructive spreading ulcerations had followed upon the bullæ, but without the formation of any tubercles on the skin."

In and around Constantinople the disease is rarely met with. Dr. De Castro, it will be observed, regards the Mosaic leprosy as identical with the tubercular disease:—

"With the exception of the cases in the leper asylum at Scutari, the

'tzaraath,'\* or leprosy of the Old Testament (which Dr. De Castro considers to have been the disease now described as Greek elephantiasis), is very rarely seen in this city. It is called by the Turks 'miskine,' by the Arabians 'djouzam.' It always commences by general or partial anæsthesia of the skin, and by copper-coloured spots on various parts of the surface, especially the face. These spots subsequently become discoloured tubercles. There is generally hoarseness of the voice and falling off of the hair. The tubercles afterwards ulcerate, destroy the tissues, and cause mutilations of the extremities. In some cases the anæsthesia is the only symptom present. The tubercular and anæsthetic forms are only varieties of one disease. The first is the most common."

The tubercular disease is here proved to prevail largely throughout the great Chinese empire, "and especially in the southern provinces." It is known by the names of 'fat-fung,' 'ta-ma-fung,' 'mo-fung,' or 'the great leprosy,' to distinguish it from other chronic cutaneous diseases, which are, however, often confounded with it, so that (says the report) "the general term 'leprosy' is often very vaguely applied throughout the country." It is common at Canton; is of frequent occurrence at Shanghai; is rare at Hong-Kong; but numerous cases are to be met with at Macao, "to which island the lepers from the mainland flock in consequence of the kind treatment they receive from the Portugese authorities there." A scaly brightness of the skin is a prominent symptom mentioned by a native leper physician to Consul Robertson, of Canton. The following description given by Dr. Henderson of the disease as it is seen at Shanghai will apply, says the report, to other parts of the Chinese empire:—

"It commences with one or more dusky-reddish shining patches on the forehead, nose, or legs; the skin seems tense, and has the look of being varnished; patients sometimes complain of weakness and languor; the appetite seems impaired; the tongue slightly furred; sensibility of affected part at first increased, but after from one to three months diminished. In the course of a short time, soft, livid, slightly prominent, indolent tubercles appear and spread over different parts of the body. Indolent, slowly corroding ulcers appear on the lower extremities; the skin becomes thickened and hard. After some months the whole skin presents a full and puffy appearance; the lips seem much thickened; the nose flattened; the nostrils dilated; the teeth become loose; the gums tender and ulcerated. The expression is peculiar, and the senses appear

\* *Λέπρα* of the Septuagint.

more or less blunted. The general health suffers little, and patients ordinarily continue their employments, unless very laborious, throughout the progress of the disease.

"In the third state of disease, parts of the face, neck, and arms are ulcerated; the lower eye-lids are everted; the bridge of the nose is broken down; the palate is destroyed; the fingers and toes drop off, and the whole body appears a mass of corruption."

The following are the conclusions arrived at regarding Interrogatory No. 1. Their great value will, we trust, be held as sufficient excuse for giving them in full:—

"The distinctive characters of leprosy are the same in all parts of the world where the disease has been observed. These are certain kinds of cutaneous eruption and discoloration, associated with a tendency to ulceration or the death of the affected parts, and with disorders of innervation, more particularly the impairment or loss of sensibility.

"Two forms of the disease are very generally described in the replies, viz., the 'tubercular' or 'tuberculous' and the 'anæsthetic.'

"Inasmuch, however, as the terms 'tubercular' or 'tuberculous' might convey the impression that leprosy is allied to *tuberculosis*, it is proposed to designate the first of these forms by the term 'tuberculated.'

"Again, the loss of sensibility is not confined to the 'anæsthetic' form of the disease, although this symptom generally occurs earlier and is more marked in it than in the 'tuberculated' form.

"The arrangement, therefore, of the different forms of leprosy into the 'tuberculated' and the 'non-tuberculated' appears preferable.

"As, however, these forms not unfrequently co-exist, or succeed one another in the same patient, they must be regarded as modifications of one morbid condition.

"Among the varieties of non-tuberculated leprosy are included the cases that are sometimes designated 'leucopathic,' characterized by white spots or blotches on the skin which are more or less decidedly anæsthetic; and also those cases in which the cutaneous eruption consists of circular or annular spots, not unlike those of *lepra vulgaris*, but in which the centre of the spots is anæsthetic, and other distinctive characters of leprosy are present. These two last-named varieties of the disease are more frequently mentioned in the replies from the East Indies than in those from other countries.

"In most countries where leprosy exists, the term 'leprous' is ignorantly applied to many diseases which cannot properly be regarded as true leprosy.

"Hence various chronic maladies of the skin occurring in unhealthy persons living in poverty and neglect of cleanliness are often confounded



with it, and the patients, being regarded as 'lepers,' are treated as outcasts and objects of abhorrence.

"Elephantoid enlargement of the lower extremities is also in some places considered as allied to leprosy. The circumstance of the two diseases bearing the same generic name (*elephantiasis*) in medical writings has doubtless contributed to this opinion. They appear to have no real affinity with each other; although both are sometimes endemic in the same countries, and occasionally co-exist in the same patient."

The report states the further opinions, that the disease is not restricted to any period of life; although it most frequently occurs about puberty, and from thence to maturity; that its length is uncertain, lasting generally from five to fifteen years, but sometimes longer; that it is more frequent in the male than in the female; and among the dark than among the white populations in hot climates; that it occurs more among the lowest and poorest of the people than among those styled their "betters;" that bad diet, exposure, insufficient clothing, intemperance, sexual excesses, and mental depression, all serve to aggravate the disease and accelerate its progress; and that the use of certain articles of food is believed to be notably hurtful. Among these are salted fish, the frequent use of salted pork, and especially its "grease," of which, reports Mr. Ford, "large quantities from pigs that feed on all kinds of offal are imported from Calcutta into Mauritius." Further, the report concludes, that leprosy is often hereditary; that it is a disease *sui generis*; that it is not contagious, and that the greatest benefit is obtained from the adoption of sanitary and hygienic measures.

Among other papers of more or less interest in the appendix we may specify extracts from "An Account of Tubercular Leprosy in the Island of Madagascar," by Dr. Davison, founded on the notes of nearly 100 cases of the disease treated in the dispensary at Antananarivo during 1862; "Sketch of the Geographical Distribution of Leprosy at the Present Time," by Dr. Gavin Milroy; "Notes respecting the Leprosy of Scripture," by the same writer; and last, though certainly not least, either as to length, interest, or value, "Observations on the True Leprosy or Elephantiasis," by that eminent veteran and leader in the department of dermatological medicine, Erasmus Wilson, F.R.S.

Mr. Wilson's views on this subject have been of late years so frequently discussed and referred to in this journal, that we should deem any particular reference to them superfluous in connexion with

this report. As to the report itself, it is signed by men whose very names give it deserved weight and authority. These names are:—

Thomas Watson, President, George Budd, G. Owen Rees, Arthur Farre, William W. Gull, Gavin Milroy, E. Headlam Greenhow, and Henry A. Pitman (Registrar.)

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*The Physiology of Man; designed to represent the existing State of Physiological Science as applied to the Functions of the Human Body.* By AUSTIN FLINT, Jr., M.D.; Professor of Physiology and Microscopy in the Bellevue Hospital Medical College, New York, and in the Long Island Hospital; Fellow of the New York Academy of Medicine, &c., &c. New York: D. Appleton and Company, 1867. Octavo, pp. 556.

*Handbook of Physiology.* By WILLIAM SENHOUSE KIRKES, M.D. Sixth edition. Edited by W. MORRANT BAKER, F.R.C.S.; Demonstrator of Anatomy and Operative Surgery; and Warden of the College of St. Bartholomew's Hospital. With illustrations on steel and wood. London: James Walton, 1867. Pp. 802, crown octavo.

IT is with pleasure we hail the publication of the second part of Dr. Flint's work on Human Physiology. Like the first, which appeared last year, and which, it will be remembered, we noticed at some length in the August number of this Journal, the volume before us is intended to form a book, complete in itself, and yet one of a series of four, which will embrace all the subjects usually regarded as belonging to human physiology.

Vol. I. treated of the Blood, Circulation, and Respiration. Vol. II. deals with the subjects of Alimentation, Digestion, and Absorption, subjects about which much has been written, and about which, especially the latter, though much by direct experiment has been learnt, there still lies a mist of doubt and uncertainty, that nothing short of perfect knowledge will, we fear, ever disperse. Great credit, however, is due to such men as Dr. Flint; for, though he has made no very original observations on the subject, he has yet, to a great extent, confirmed and strengthened the opinions of others by repeated and carefully-executed experiments.

The subject of Alimentation is treated of in four chapters.

The first is on Hunger, Thirst, and Inanition; the second on Alimentary Substances, simple and compound; the third on the different kinds of Food; and the fourth on the Drinks commonly employed by Mankind. In all of these there is matter of considerable interest, but particularly in chapter I., as it contains an account of the great privations endured by the Federal prisoners during the late Civil War in America. The description, taken from the official report of Professor Jones, of Augusta, is couched in glowing language, and tells a fearful tale of misery and suffering, due to hygienic and dietetic errors. Out of an hospital of 5,000 sick, the daily mortality ranged from 95 to 130. Everything that could be imagined likely to produce disease was there, and diarrhea, dysentery, scurvy, and hospital gangrene, failed not to mow the unfortunates down by hundreds.

“More than 30,000 men were crowded on 27,000 acres of land, with little or no shelter from the intense heat of a Southern summer, or from the rain or dew; with little or no attention to hygiene; with festering masses of filth at the very door of their rude dens and huts; with the greater portion of the banks of the stream flowing through the stockade a filthy quagmire of human excrements alive with working maggots; generating by their own filthy exhalations and excretions an atmosphere that so deteriorated and contaminated the fluids and solids of their bodies, that the slightest scratch of the surface was frequently followed by rapid and extensive gangrene, imperilling the limb and even life.”

In proof of the absolute necessity of variety of food, a fact already well established by experiment both on the lower animals and on man himself, Dr. Jones states that the sameness and the coarseness of the food supplied produced, at first, a dislike, and afterwards such a loathing of it, that finally all the symptoms of starvation were developed in the most aggravated degree.

A fact of the greatest interest, in a medical point of view, was demonstrated by this official investigation—namely, that, notwithstanding defective nutrition in men subjected to crowding and filth, contagious fevers were rare, and typhus, which, according to the first authorities on the subject—Drs. Murchison and Laycock—has its origin in these very circumstances, and has been, for this reason, termed by the latter “ochlotic,” was literally unknown.

In the succeeding chapters on alimentation, there is perhaps too much written, and too much stress laid upon the details of the cooking, and various modes of dressing the articles of food used by



man. It is, however, pardonable, when we look through the formidable array of such matters laid down in the French Pharmacopœia.

The subject of digestion is considered at much greater length, and the perusal of the many experiments in connexion with it performed by Dr. Flint, gave us much pleasure, as they pourtray such accuracy of observation and careful minuteness of investigation.

We find that at page 302 Dr. Flint is at issue with Drs. Brinton, Carpenter, and Todd and Bowman, on the subject of vomiting, as he reverts to the first opinion entertained by Magendie and John Hunter—that the action of vomiting is performed entirely by the diaphragm and abdominal muscles, totally independent of the muscular contraction of the stomach. This view he bases upon experiments performed by himself, and upon the correct reading of the report of the case of extrusion of the stomach, reported by Lépine in 1844. As this case has frequently been misquoted so as to appear that the contractions of the stomach itself were sufficient to produce vomiting, while the reverse seems to be the case, and as this misquotation is to be found both in Carpenter's *Principles of Physiology* of 1864, and in Todd and Bowman's *Physiological Anatomy*, 1857, we think Dr. Flint's explanation and remarks not out of place. In the case alluded to, Carpenter says:—"The stomach having wholly protruded itself, it was seen to contract itself repeatedly and forcibly during a space of half an hour, until by its own efforts it had expelled all its contents except gases." While in the original account (Lépine, *Plaie pénétrante de l'Abdomen ayant donné issue à l'estomac*, *Bullet de l'Acad. Roy. de Médecine*, 1844, p. 146, *et seq.*), the reporter says:—"Thus, during all the time the stomach remained out of the abdominal cavity there did not take place any apparent contraction of the muscular fibres of this viscus, and nothing that it contained was expelled from its cavity, notwithstanding the violent efforts at vomiting that the patient made. Hardly had the stomach been returned into the belly when the same effort produced expulsion of aliments."

It seems hard to us to reconcile the fact that authors of such celebrity and of the above-mentioned excellent and comprehensive works on physiology could have made such a conflicting statement, except it be, as Dr. Flint suggests, they were content to take a quotation at second hand, when a reference to the original would

have enabled them to have avoided a statement so precisely opposite to the fact. This error Dr. Flint does not take credit to himself to have corrected, as Brinton, Dunglison, and Milne-Edwards, have all given the correct account as early as 1856.

In conclusion of this subject Dr. Flint holds that all the facts bearing on it go to show that in true vomiting contractions of the muscular coats of the stomach are not necessary, are not definitely connected with the act, and are never capable of discharging any part of the contents of this viscus.

The chapter devoted to the inquiry as to the functions of the pancreatic juice is evidently the result of much care. It gives the experiments in full of de Graef, Magendie, Bernard, and others, and the methods they adopted to obtain this secretion in its normal condition. Bernard seems to be the only one who has succeeded. He operated on a dog, and in some very successful experiments he has obtained from sixty to one hundred grains of juice in an hour from one of medium size. For a description of the process he adopts we must refer the reader to page 334-337.

The rest of the subject of digestion is handled in the same masterly way, and conflicting statements discussed in a temperate spirit. We notice, however, that when writing on the bile and its uses in digestion, Dr. Flint has entirely omitted to mention that, while the action of the bile is only subsidiary to that of the pancreatic juice, it certainly aids very materially the absorption of oleaginous bodies by enabling them to pass more easily through the coats of the intestine. For Wistinghausen and Hoffman have shown that the force requisite to effect the filtration of an oily substance, through an animal membrane is much less where the membrane is moistened with an alkaline fluid, or with bile, than when it is moistened with pure water.

The third part is devoted to the subject of Absorption, and includes chapters on Imbibition and Endosmosis, and on Lymph and Chyle.

As it is not our intention to go regularly through the different chapters of this work, we shall conclude our remarks by subjoining the following passage on the origin of the lymph corpuscles. The recent date of the experiments detailed must be an excuse for the length of the quotation.

After bringing forward the late researches of Robin in refutation of the theory that these corpuscles are formed by the lymphatic glands or by the walls of the lymphatic vessels, Dr. Flint refers

to the observations and experiments of Onimus,<sup>a</sup> made within the last year, on the genesis of leucocytes and upon spontaneous generation:—

“Onimus used the clear fluid taken without delay from rapidly developed blisters, which he found ordinarily contained no leucocytes, but which he carefully filtered in order to remove all sources of error. The filtered liquid contained no morphological element whatsoever; but, on the other hand, he found that if the liquid were allowed to remain for an hour or more in contact with the dermis, it always contained leucocytes and epithelial cells. Under these circumstances, even after filtration, the liquid contained a few leucocytes; but after six or seven hours of repose in a conical vessel, the corpuscular elements gravitated to the bottom, leaving the upper portion of the liquid perfectly clear.

“This liquid, entirely free from formed anatomical elements, was enclosed in little sacs formed of an animal membrane (goldbeater's skin) and introduced under the skin of a living rabbit. At the end of twelve hours, a few small leucocytes and granulations had made their appearance; at the end of twenty-four hours, the fluid had become somewhat opaque, and contained a large number of leucocytes and granulation; and at the end of thirty-six hours the fluid was white, milky, and composed almost entirely of leucocytes and granulations. The leucocytes, which were examined also by Robin, presented all the characters by which these corpuscles are ordinarily recognized. These experiments were repeated with more than forty different specimens of fluid from blisters.

“The experiments were then varied in order to show the influence of the membrane and of the composition of the blastema upon the development of leucocytes. By modifying the membrane in which the blastema was enclosed, it was found that the corpuscles were rapidly developed in proportion to the activity of the osmotic action. When thick animal membranes were used, their development was slow, and in some instances, did not take place at all. There was no development of leucocytes in a clear blastema enclosed in a sac of caoutchouc or in glass tubes hermetically sealed; and from this it was concluded that the osmotic action was a necessary condition, and that the mere heat of the body was not sufficient to develop these corpuscles, even in an appropriate blastema. The influence of this constant molecular movement is in striking contrast to the conditions of absolute repose which are so essential to the formation of crystals from ordinary saline solutions.

“One of the most interesting points in these experiments is connected

<sup>a</sup> Onimus, *Expériences sur la Genèse des Leucocytes et sur la Génération Spontanée*—*Journal de l'Anatomie et de la Physiologie*, Paris, 1857, tome iv., p. 47, *et seq.*



with the influence of the composition of the blastema upon the development of leucocytes. It was found that these bodies were never developed in a blastema in which the fibrin had been coagulated. Experimenting with two liquids, the only difference in their constitution being that in one the fibrin had been coagulated by repeatedly plunging the glass tube in which it was contained into cool water, while the other was kept at the ordinary temperature, a little bicarbonate of soda being added to prevent coagulation, it was found that leucocytes were developed as usual in the fluid which contained its fibrin, and that none appeared in the other. On placing the liquid with its coagulum enclosed in a sac under the skin, it was found that after a time the fibrin was redissolved, but no leucocytes made their appearance.

"The theory which has for its motto, *omnis cellula e cellula*, receives no support from these experiments. Onimus added to fluids which had been deprived of their fibrin, epithelial cells and pus-corpuscles, but even after thirty-six hours, he never found any additional development of corpuscular elements. Leucocytes added to fluids in which the fibrin was unchanged did not seem to exert any influence upon the development of new corpuscles.

"As regards the lymph, there is no fluid in the body which is placed under conditions more favourable to the development of leucocytes. It is enclosed in a system of vessels possessing extremely thin walls, and undoubtedly subjected to active osmotic currents. It contains, likewise, a considerable quantity of fibrin; and the proportion of this principle has always been found to influence the rapidity of the development of white corpuscles. Its circulation is not very rapid, and the obstacles to the current which are presented in the lymphatic glands undoubtedly give time for the perfection in the structure of leucocytes. It is in this way that the increase in the number of leucocytes as the lymph passes from the periphery to the larger vessels, and especially as the fluid passes through the glands, can be explained.

"From the fact that leucocytes are developed before the lymphatic system makes its appearance, that they are found in lymph which has never passed through lymphatic glands, and from the observations just cited showing their spontaneous formation in an amorphous blastema, it is the inevitable conclusion that nearly, if not quite all, of the lymph-corpuscles are developed by genesis in the clear lymph-plasma, and that their development goes on as the fluid circulates towards the venous system. With regard to the influence of the lymphatic glands upon the generation of leucocytes, there is no evidence that the corpuscles which are developed in the course of the lymph through these organs are not here, as elsewhere, formed simply from the blastema; and it is not necessary to invoke any special formative action taking place in the peculiar structures of the glands."

Of a book so well known to the profession as Kirkes's *Handbook of Physiology*, and which has now reached its sixth edition, it would be quite superfluous of us to make any further observations, beyond noticing the fact, were it not that the editing and revision have passed into new hands.

Mr. Morratt Baker, in the Introduction, acknowledges the responsibility he has undertaken, thoroughly to revise the entire book, and bring the present edition up to the standard required by recent investigations, without at the same time losing the unity of style and plan of the former editions. On looking through it we are glad to find most of the book remains intact, and the portions which have been altered or re-written have been done so with care and due regard to modern investigation and research. Yet, while the alterations we have observed can most of them be also classed as improvements, as, for instance, the description at p. 124 of M. Marey's *Sphygmograph*, with various pulse tracings, we must express regret that the opinions of authorities on subjects not as yet uncontrovertibly determined, and which appeared in the former editions, have been omitted in this.

Mr. Baker has added three entirely new chapters—two at the beginning, on the general and distinctive characters of living beings, and the relation of life to other forces; and the third at the end, forming a useful appendix, on the structure of the elementary tissues of the body, hitherto omitted in former editions. The book has, therefore, without being at all cumbrous, been augmented by about thirty pages, while a still greater increase has taken place in the illustrations, so useful to the student, many of which have been taken from the 7th edition of Quain's *Anatomy*.

On the style of the additional chapters and alterations we congratulate the editor, as it is in keeping with the character and object of the book. We can, therefore, confidently recommend it to the student as one of the best manuals on the subject.

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*On the Management of Labour in Contracted Pelvis.* By WILLIAM H. JONES, M.D. 8vo., pp. 61. London: Hardwicke, 1867.

WITHOUT pretending to be a complete treatise on the management of difficult labour, depending on pelvic deformity, this is yet a very able memoir on the subject, and possesses the strong recommendation of being based on clinical facts. It is nearly a literal

translation of the author's inaugural treatise, written for the faculty of medicine of Paris, in the year 1864; and for which treatise a first prize was awarded by the Minister of Public Instruction of France. The progress of obstetrics, as well as of every other branch of human knowledge, is now so rapid, that even within the brief space which has elapsed since this essay was written, some changes of opinion have taken place, more especially with regard to the operation of cephalotripsy, in these countries.

The author tells us that during the years 1857, 1858, and 1859, about fifty-six cases of narrowed pelvis were treated at the hospital of *La Clinique d'Accouchements* in Paris; fifty-one of these came under his own personal observation, and of these he has given the particulars in a tabulated form, whilst the histories of some of them are given in detail. With the experience derived from these fifty-one cases Dr. Jones proceeds to his task, and by a careful examination of the data which they supply, endeavours to throw light on the various practical questions of deep importance connected with the treatment of labours of this description.

The consideration of the induction of premature labour does not fall within the scope of this memoir; but its omission is much to be regretted, as it is intimately connected with the whole subject; and, moreover, by comparison with the induction of labour (as a resource in cases of pregnancy with deformed pelvis), the value of some of the other modes of treatment must be materially affected. For some reason or other this measure has never found favour among French accoucheurs, notwithstanding the accumulating mass of evidence which each successive year's experience brings to attest its value. Of Dr. Jones' fifty-one cases only *three* underwent this operation; delivery in each instance was natural, and all the mothers, and one child, were saved. Two of these cases belong to Dr. Jones' third group, where the conjugate diameter of the pelvis was between  $2\frac{1}{2}$  and 3 inches; and the other was in his second group, with a conjugate diameter from 3 to  $3\frac{1}{2}$  inches.

The author fully appreciates all the difficulties which beset the practitioner in his conduct of these cases, and he admits there is "no absolute rule by which the accoucheur can regulate his treatment."

"That which we ought particularly to avoid in this, as in every other branch of medical art, is a tendency to act too systematically. In obstetrics especially the spirit of system is pernicious. Inspiration must be drawn from circumstances as they present themselves; therefore, we



cannot attach ourselves to any unique and unvarying mode of treatment which never changes, but submits to its narrow and absolute routine everything which may occur, however different, however dissimilar."

The author distributes his fifty-one cases into four groups or categories, taking the capacity of the pelvis, or, to speak more precisely, the length of the antero-posterior diameter, as the basis of this division. Thirteen of these women died, and of course in each of them the measurement of the pelvis could be ascertained to a nicety; but in the thirty-eight who recovered, we may be excused for asking how the length of this diameter was so precisely determined? No doubt it is only stated to within half an inch, which leaves room for correction, still we should like to have been informed as to the mode of measurement adopted in these cases; for, if our practice is to be regulated by the capacity of the pelvis we have to deal with, it is plain we should employ reliable methods of estimating this capacity. A case which may serve to illustrate this very point is detailed by Dr. Jones. The woman was subjected to a prolonged series of operations, and at the autopsy the pelvis was found to be "more deformed than was supposed, its antero-posterior or sacro-pubic diameter measuring not quite  $2\frac{1}{4}$  inches; its left side very contracted." The clinical history of this case is so remarkable, considering where and under whose hands it occurred, that we must give a summary of it:—

The patient, a primipara, aged 19, took her labour at 10 p.m. of 15th August, and was admitted to the *Clinique d'Accouchements* on the morning of 16th. At 9 a.m. the dilatation of the os being complete, M. Dubois ruptured the membranes, but nothing further was done for seven hours, though it must have been apparent that nothing was to be gained by waiting, save the loss of precious time. "At 4 p.m., the labour making no progress, craniotomy was performed by M. Taurin, who immediately afterwards applied the cephalotribe, and crushed the head; but this could not be brought down, in spite of strong tractions. The second time part of the head seemed to come down. The woman was then left until half-past 5, at which hour the cephalotribe was again used, but without being able to get a good hold on the head. M. Dubois again tried, but had great difficulty in inserting the branches of the instrument, on account of the anfractuosity caused by the broken bones of the skull. After two fruitless attempts he adjourned further operations until 8 o'clock. At that hour things were in *statu quo*, the patient having had but slight pains in the interval. Three pills

of extract of opium were administered, and she was left until the morning." Now we would just interpose the question—what possible advantage could be expected from leaving the patient in this state for *thirteen* hours? Nay, rather, was it not calculated in every way to prejudice her condition, and lessen the chances of recovery? No marvel then, that at 7 a.m. next morning, she "was in exactly the same state as regards the labour," but "the skin was hot and dry; pulse at 120." And how could it be otherwise under the circumstances? At 9 a.m. M. Dubois again employed the cephalotribe (its sixth application) but in vain; whereupon M. Taurin introduced his hand to turn, and with some difficulty caught and brought down a foot, but the other could not be extracted. "The cephalotribe was then applied to the pelvis, but all attempts to extract the fetus remained unsuccessful." Much blood now flowed from the vagina, and the woman become pale and faint, which rendered it necessary to suspend the chloroform, and use restoratives. She rallied, but at half-past 10 severe rigors came on, and at 11 she vomited black matter abundantly. At half-past 1 o'clock the other leg was disjoined by the help of the crotchet, and some minutes afterwards the fetus was extracted, "but at the same instant the unfortunate woman expired." At the autopsy, the vagina was found torn; "uterus not completely ruptured, but presenting on its inner side an *enfoucement*, of the finger of a glove shape, penetrating almost through the tissue of the organ. The dimensions of this lesion correspond in size with the blade of the cephalotribe."

The practice pursued in this case is undoubtedly open to severe animadversion; and we venture to say, that had it occurred to a dispensary medical officer in Ireland, he would have lost his appointment, and, in all probability, have been subjected to an action for manslaughter! But, "they manage these matters better in France!!"

Having given the statistics of the four classes into which he divides his 51 cases, the author next proceeds to consider the important question of treatment, in each of the four degrees of pelvic contraction. The title of section I. is, "What ought to be the conduct of the accoucheur when the conjugate diameter of the pelvis is narrowed, but not under  $3\frac{1}{2}$  inches?" In answering this question the author does not confine himself to cranial presentations, but describes the treatment to be pursued should the child present preternaturally; and he observes the same course in other sections, which gives the greater value to his remarks.

In these cases of slight deformity the long forceps is the instrument on whose aid he places most reliance, having "too often witnessed its employment at the Hopital of *La Clinique* in such cases, not to be convinced of its efficacy." The only indications he gives for its use, are such as betoken the child to be suffering from the labour. Of course, natural delivery is a thing to be looked for among patients of this class; and six of the author's cases (out of sixteen belonging to this section) were so delivered.

In section II. he discusses the treatment where the sacro-pubic diameter is between  $3\frac{1}{2}$  and 3 inches. Here the interposition of art can rarely be dispensed with, though spontaneous delivery is not impossible, of which he gives two examples. Supposing the head to present the course of treatment recommended, he says, by the most eminent modern accoucheurs of France (Dubois, Depaul, Pajot, Blot, &c.) is this, viz:—two to three hours after full dilatation of os uteri to apply forceps and make moderate tractions. If these fail, the blades are to be withdrawn, and the contractions allowed to produce their effect for an hour or two. If no result follow, a second or third application of the forceps is to be tried, and these failing, recourse must be had to embryotomy. With this treatment the author is not satisfied, and, to be candid, neither are we. He here introduces a table to show that the more prolonged the labour the worse is the result to mother and child. But this table does not establish the point so conclusively, for the maternal mortality among the cases in which labour lasted from 24 to 48 hours was a fraction greater than among those above 48 hours; and, furthermore, we find that in his second group of cases the average duration of labour was 46 hours, and the maternal deaths 1 in 15; whereas in his first group, with more pelvic capacity, and average length of labour 33 hours, the deaths were 5 in 16; so that these figures, as far as they go, directly lead to the inference that mere length of labour has no influence upon the result to the mother. Disapproving of the delay which the repeated applications of the forceps necessarily entails, the author takes occasion to consider the alleged advantages of version, as recommended by Ould, La Chapelle, Simpson, and M'Clintock. He enters upon this subject at considerable length, as he thinks this method has been rejected in France without sufficient trial—Cazeaux being the only French author who writes favourably of it.

Having explained the rationale of this method (in which he follows the track of Simpson), he proceeds to quote at great length



from the monograph on the subject by Dr. M'Clintock, in the 4th vol. of the *Trans. of London Obstetrical Society*, reproducing his table and four of his clinical histories. He reviews the operation in its effect upon the child and upon the mother. He does not think version is more advantageous for the infant than the long forceps, but still he is of opinion that "turning ought to replace repeated applications of the forceps. It ought to be employed after one or two fruitless attempts with that instrument." As regards the interests of the mother he "has no hesitation in thinking that it (version) is a mode of treatment preferable to the use of the forceps, for it permits us to interfere at an earlier period of the labour;" and he quotes a passage from M'Clintock's monograph, which plainly puts forward the same opinion. It is hard to say whether version or the forceps is the more efficient mode of delivering in cases of contracted pelvis. Probably the acquired skill of the operator would go far to decide the point in any given case. M. Blot extracted a living full-sized child, at full term, by turning, in a woman with deformed pelvis, whose preceding accouchement could only be terminated by cephalotripsy, after two attempts with the forceps; but it is right to state that the face presented; so that the case does not yield a conclusive inference in favour of version. A crucial case, however, was narrated by Dr. Braxton Hicks, in which the long forceps failed to bring the head through the brim, but where, by turning, the child was delivered after some detention, its heart pulsating for an hour and a half after birth.

The third group of cases, with sacro-pubic diameter from  $2\frac{1}{2}$  to 3 inches, include *eleven*: *nine* of the children, and only *one* mother, were lost. The two children saved were delivered by forceps. If the forceps fail, in cases of this degree of pelvic contraction, the chance of saving the child is all but gone, he thinks; the only resource now is between version and embryotomy. From a repugnance to perforate where the child is alive, he gives a preference to version, though fully recognizing the difficulties in the way of its accomplishment. In one of the cases of this series, turning was performed by Dubois—the shoulder having presented. The conjugate diameter was  $2\frac{1}{2}$  inches, and the woman was only  $7\frac{1}{2}$  months pregnant. After many laborious attempts the right foot was brought out, then the left, and the extraction of the trunk was effected, but no force could get the head away. Detruncation had then to be performed, and the cephalotribe to be twice applied

before the head was removed. The woman recovered. This case very aptly illustrates the difficulties which may be expected when version is performed, the pelvis being much below the natural size; in fact turning, under these conditions, only increases our difficulties, and certainly should not be done if the head be the presenting part. In the above case the shoulder presented, so that version was not purely an operation of choice.

The fourth section is taken up with the consideration of the question, "what ought to be the accoucheur's conduct when the conjugate diameter of the pelvis is under  $2\frac{1}{2}$  inches?" Here all hope of extracting a living child by the natural passages is inadmissible, so that our undivided attention may and ought to be given to the preservation of the mother's life. Nine examples of this degree of pelvic contraction are tabulated by Dr. Jones—six of the women perished; which fact sufficient evidences the extreme danger to maternal life in such labours. The practice pursued in these nine cases was as follows:—*one* underwent Cesarean section, and died two days afterwards; in *two* cases of breech presentation, detrusion was followed by cephalotripsy; in *five* cases, a direct application of the cephalotribe was made to the head; in *one* case version was performed after cephalotripsy, and the woman died immediately. The history of this last case has been quoted already. One patient died undelivered; the conjugate diameter of her pelvis was  $1\frac{1}{2}$  inches; the cephalotribe was applied seven times in the course of as many hours, by M. Dubois, but without success. Cesarean section seemed the only chance of delivery, but M. Dubois thought it was better to wait (she having already been upwards of four days in labour), fearing she would die under the operation, so nothing further was done, and she died in four hours.

The author admits that in labours of this class the forceps is "powerless," and "that its use would even be injurious, as it would unnecessarily fatigue the patient." In like manner, he says, version can be of no utility to the child, is difficult of accomplishment where the pelvic diameter approaches to 2 inches, and a resort to embryotomy is almost always required to extract the head and shoulders. Still, he seems to think, that as an adjuvant to embryotomy, it may be advantageous. "By means of version the hand of the accoucheur may succeed in placing the base of the skull in such a position as to make the use of crushing instruments efficacious. At other times, turning can, by changing its position, draw out the head, already crushed by the cephalotribe, but which has

resisted all tractions made by this instrument." The performance of turning after perforation, or cephalotripsy, has been advocated by some English accoucheurs; and, whilst we admit that in some cases it may facilitate the extraction of the child, yet we very much doubt if it can subtract ought from the danger to the patient. It is just an alternative measure which may, on rare occasions, be resorted to with advantage, and which, therefore, a judicious man will not altogether forget. In cases of extreme pelvic distorsion, Dr. Jones says that there is great difficulty in applying the cephalotribe in such a manner as to act on the base of the skull, or even to get a secure hold of the head. Even M. Dubois, with his great experience and well-known dexterity, can sometimes hardly succeed. The instrument of Depaul is provided with a crotchet at the superior and internal part of each blade, so that if once properly applied, we have a firm hold of the head and can exercise powerful traction. But we would ask—is it wise, is it safe, to apply the instrument to this use? Because we may have a firm hold with it, are we, therefore, to extract with it? We think not. To use it as an extractor is, in our opinion, an abuse of the instrument. The special object and purpose for which it is fitted is to crush and break up the head; and if this be thoroughly done, its extraction can be easily effected, and by much safer means.

The cephalotribe described by Dr. Kidd, in his papers published in late numbers of this Journal, is very much smaller in its dimensions than those Dr. Jones has been accustomed to see in use in the Parisian hospitals, and it is easier of introduction, and safer in its application. It is specially fitted for thoroughly crushing the head, while its powers as a tractor are very limited. Instead of making forcible extraction, Dr. Kidd recommends the adoption of M. Pajot's plan of repeated crushings without traction. Dr. Jones also describes the method of operating adopted by M. Pajot, who perforates as soon as the os uteri is sufficiently dilated to admit the passage of the cephalotribe, and applies this instrument at repeated sittings, till the head is so broken up that it can be expelled by the uterine powers; and this early interposition of art is, no doubt, one important condition of success in these untoward cases. M. Pajot has published the particulars of seven cases treated in this way, five of which were successful.

Where the degree of pelvic contraction reaches so low as two inches or under, the danger consequent upon delivery, *per vias naturales*, becomes so great, as nearly to equal that of Cesarean



section, so that an exclusive regard for the mother's life would incline us to the latter. Before deciding, however, which of these two operations should be performed, there are other points besides the size of the pelvis to be carefully considered, viz., the period of pregnancy, the condition, and probable size of the child. Professor Depaul, Cazeaux, and Professor Velpeau, all fix upon two inches as being about the smallest capacity of pelvis in which embryotomy should be performed. Upon this important question we may be excused for quoting one of the latest, and, at same time, one of the highest authorities, Dr. Greenhalgh:—"Nothing would ever again induce me to attempt the delivery of a patient at the full period of pregnancy, by craniotomy, whose pelvis did not measure fully two inches in the conjugate diameter of the brim—except I had strong reason to believe that the fetus was in a decomposed state, or premature; and not even then, if her powers had been much taxed, or the soft parts inflamed, or otherwise damaged."

*Report of the Committee appointed by his Excellency the LORD LIEUTENANT to inquire into the Dietaries of the County and Borough Gaols in Ireland. Blue Book. Dublin, 1868. Pp. 88.*

THE committee, whose report we have before us, was nominated some months ago to inquire into the dietaries in the County Gaols of Ireland, and to frame a dietary such as would be fitted for prisoners condemned to hard labour. They were instructed while doing so to keep in view the ordinary food of the labouring population throughout the country as well as the dietaries in the workhouses. The duty thus imposed upon the members of the committee required that they should before making their final recommendations investigate three distinct subjects—

1st. The existing scales of diet in use in the County Gaols of Ireland.

2nd. The dietary of the labourer, small farmer, and artisan throughout the country.

3rd. The dietary in use in the workhouses.

In their inquiry into these topics the committee have accumulated a vast deal of information which is both interesting and instructive, and indeed calculated to throw some light on the present improving condition of this country.

In order to obtain a general view of the dietary adopted by the

agricultural labourer, the small farmer, and in some cases the artizan, letters were addressed by the committee to members of the medical profession in every county of Ireland, most of them medical officers of dispensary districts. A few communications were made to clergymen. Some of the most important of the answers to these letters appear in the appendix, from which we extract the following:—

From the Rev. S. Dixon, Rector of Clogherny, County Tyrone.

“The Poor Law Guardians say that the dietary of the workhouse is superior to that of the labouring classes outside; that the inmates of the workhouse receive oatenmeal and sweet milk, in place of Indian meal and buttermilk; but the poor people themselves think differently; they speak of the porridge and milk being both poor and watery, and of their food being badly cooked. There are several circumstances however which are calculated to make workhouse diet distasteful to them, independent of the quality and preparation of their food, and these probably influence their judgment. I have no hesitation at any rate in saying that the diet of the workhouse is not such as to offer any inducement to the poor to enter it.

“I have never heard, nor do I believe, that crime has ever been committed in this neighbourhood with the object of ‘getting into gaol,’ and thereby procuring a better diet.”

From the Right Rev. Dr. Moriarty, Killarney:—

“November 22, 1867.

“The ordinary diet of the peasantry consists of the potato and Indian meal bread. The potato is largely used, by some almost exclusively used from July to Christmas. Indian meal more used from Christmas to July.

“Many working men have one meal of Indian meal bread, the other of potatoes; they find it easier to work on a breakfast of bread.

“I have observed that fever invariably increases with an abundant crop of potatoes.

“Scarcely any animal food is used in the country except the veal of calves killed immediately after they are born.

“In towns where much meat is slaughtered I hear that even the poorest generally get a little every day; this was particularly the case in Tralee, where an enterprising Scotchman, named Lunham, carried on a large trade in bacon, and slaughtered many hundred pigs every week. If all Irish meat was slaughtered before leaving our shores, the food of the Irish people would be greatly improved.

“The use of bread is more general amongst the labouring class than formerly, and the use of tea is fast becoming universal.”

As to the insufficiency of the dietary hitherto in use in the county gaols there is indeed singular unanimity among the governors and medical officers of those institutions. Of thirty-nine governors, all save seven, of the medical officers all save two, testify to the insufficiency of the diet. Is it not surprising under such circumstances that the Inspectors of county prisons, cognizant as they must (or at least ought to) have been of these facts, should not ere now have insisted upon directing the attention of Government to this important subject?

The concluding part of the report embodies the recommendations of the committee—recommendations which appear to us to be full of sound and practical good sense, and which, we are happy to learn, have been already adopted by the Government in the county gaols throughout Ireland. In this portion of their report the members of the committee wisely, we think, express their conviction, that in performing such a task as was confided to them, they would have been diverging into a useless undertaking in entering upon considerations as to the chemical constituents and ultimate analysis of food.

“It appears to us,” they say, “that in proposing dietaries for the different classes of prisoners in the Irish gaols, it is unnecessary to overload our report with details as to the elementary analysis of the food recommended. For the questions as to what amount and what quality of food may be necessary to support health, by addition of material or by prevention of waste of the body under a given amount of labour, seem to depend on considerations to a great degree apart from those relating to its elementary analysis.

“In this inquiry we gain little in a practical point of view by determining the actual amount of nitrogen, carbon, oxygen, and hydrogen which are supposed necessary for the support of life under varied circumstances; were we to do so we should have to deal with differences of opinion among scientific men. If these elements were administered in their simple state, and in a supposed due proportion, they would in no case support life. But when taken in most of the forms of combination in which they exist in animal and vegetable matter they become nutritive. Hence the question is rather more as to the quantity and quality of food than its ultimate elements. It is more a question what kind and amount of food is proper, than what relative amounts of nitrogen and carbon, of oxygen and hydrogen should be given. The human digestive and respiratory systems are laboratories no doubt, but they are living laboratories, and so, purely chemical considerations are, at least at present, insufficient to explain their results.



“And even if we were to give the absolute quantities of these elements in each article of food, together with their cost as related to these quantities, we should not necessarily arrive at any correct notion of the nutritive value or the relative cost of the food, inasmuch as all these elements may exist in combinations whose dietetic properties, whether as regards the addition of material or the prevention of waste, are held to be of the lowest value; while the expense of various articles of food of the same, or of very similar ultimate composition, may be very different. For similar reasons we do not think it necessary to deal with even the proximate analysis, as such could merely give, in relation to the nutritive character of a dietary, results which would be only approximative, and would furnish no means of estimating the cost. Besides the amounts of albuminous, starchy, or oily matters, there are other substances necessary for the support of life, and these are presented in varying quantities, especially in vegetables, so that in the end experience will have to be resorted to; and as in the case of the ultimate analysis in relation to food, so in that of the proximate, there are wide differences of opinion among scientific men.”

There are not a few questions entered upon in this report, upon the discussion of which we should gladly enter did our space permit. Among these the questions of reduced diet as a means of punishment for prison offences, or of increased diet or “reward diets” for those who are well conducted in prisons, are of the highest interest.

The committee is not favourable to the system of punishment by reduction of diet, in as much as they consider it likely to induce the bodily evils which are produced by defective nutriment, and so weaken that power of self-control which is the sole means of avoiding the repetition of their offence.

The arguments for increased diet for good conduct do not appear to the committee sufficiently strong to induce them to advocate the system of “reward diets,” a system, we would add, which in a modified form is found to work well in the Continental prisons.

We hope that the Chief Secretary for Ireland may not overlook a concluding paragraph of the report, which is in itself a condemnation, by three independent medical gentlemen, of the arrangement lately sanctioned by his Lordship in the medical arrangements in the Irish convict service.

“We would in no way counsel any diminution of the powers of the medical officers of prisons, the importance of whose functions both as to the health of the prisoners and the due execution of the law, it is difficult to overestimate. In Ireland, more perhaps than in any country with which we are acquainted, the surgeon has to perform the difficult

and responsible duty of determining questions as to the remission of sentences in consequence of illness, alleged or real; and under these circumstances there is sometimes brought to bear upon him a great pressure from without. *Such an officer should be chosen from the best ranks of his profession, and should above all things occupy a perfectly independent and honourable position.*"

*The Liverpool Medical and Surgical Reports.* October, 1867.

Edited by F. T. ROBERTS, M.B., B.Sc., Lond., and REGINALD HARRISON, F.R.C.S. London: John Churchill, New Burlington-street. Liverpool: Adam Holden, 48, Church-street.

THIS volume proceeds from the Royal Infirmary and School, the Northern Eye and Fever Hospitals, and the Ladies' Charity, and we are glad to see so many of the institutions have combined in its production, their only rivalry seeming to be as to who should attain the greatest perfection, and we can promise that such "endeavours to promote and foster clinical inquiry" will be appreciated so long as medicine is cultivated by earnest and thoughtful men.

I. *Cases of Paralysis, with Clinical Observations.* By JAMES TURNBULL, M.D., Physician to the Liverpool Royal Infirmary.

In this paper four cases are described: In the first there was hemiplegia, with muscular rigidity and pain following epileptiform convulsions. It was treated by leeches to the head, counter-irritation by blisters to the nape of the neck, bromide of potassium and galvanism; a perfect recovery followed.

The second case is that of a sailor, aged twenty-one, who was admitted to the hospital after a week's illness, of which no clear account could be obtained. He had complete loss of power of the lower part of the body, and extensive sloughing over the sacrum. Dr. Turnbull thinks it probable there was extravasation into or upon the spinal cord. Under the use of stimulants, quinine, and nutritious food, he quickly began to recover. The third and fourth cases are examples of paralysis occurring in syphilitic patients, and treated with mercury and iodide of potassium.

II. *Injuries of the Trachea, with Remarks.* By JAMES LONG, F.R.C.S., Consulting Surgeon to the Royal Infirmary.

Mr. Long records a very interesting and noteworthy case of injury to the trachea in a boy, aged six, who, from a fall, got a lacerated wound in the neck, opening into the mouth. General emphysema

ensued, with such distress that tracheotomy was performed. Seventeen months afterwards, it being still impossible to remove the tracheal tube, as he could not breathe without it, Mr. Long laid open the cricoid and thyroid cartilages exactly in the median line. A large fungous granulation now slipped forward and was removed, and also a smaller one, the size of a split pea, from the right chorda vocalis. The boy now made an excellent recovery; the opening in the trachea closed, and he quite regained his voice. No mention is made of the use of the laryngoscope in this case. It seems to us possible that by its aid the obstruction might have been removed by a less serious operation. Mr Long gives, in connexion with this case, an account of the present condition of a man whose trachea had been completely severed eleven years previously, and also the *post mortem* appearances in the trachea of a woman who had been forcibly strangled.

### III. *On Croup.* By THOS. INMAN, M.D., Physician to the Liverpool Royal Infirmary.

The following are the conclusions to which Dr. Inman arrives as to the treatment of this affection:—

“1.—In slight cases no medicaments are necessary; hot moist air and local warmth suffice; talking and laughing are to be deprecated so long as the laryngeal muscles are irritable; fever may be subdued by the free use of oil to the skin. 2.—In more severe cases an emetic of ipecacuan will relax the arid mucous membrane, and thus put an end to that distressing dry stage with which we who suffer from catarrh are so familiar. 3.—To reduce the irritability of the laryngeal muscles opiates may be used, both locally and generally. 4.—We must next endeavour to remove, as far as possible, every irritant from the sensitive spot; and to effect this every breath which is inhaled should be of the temperature of the body, and moist as is the human breath. 5.—Such symptoms as thirst and feverishness may be met by any drink the patient selects; it is certain that under such circumstances a child will neither select spirits, wine or ale. 6.—The occasional inhalation of chloroform may be adopted, if the patient when first seen is in very low condition.”

### IV. *Deposit of Strumous Matter within the Globe of the Eye, simulating Malignant Fungus, with Remarks.* By R. HIBBERT TAYLOR, M.D., Senior Surgeon to the Eye Infirmary, and Lecturer on Ophthalmic Medicine and Surgery to the Royal Infirmary School of Medicine.

A girl, aged fifteen, for four months had pain over the left eye-



brow, of a dull, heavy character, worse at night. Vision gradually declined, and was lost altogether. The globe was enlarged in the form of two rounded elevations, as large as peas, covered with vascularity; no pain on pressure, but the eyeball firmer than natural. On looking into the pupil there was an opacity behind it, of a yellowish wash-leather hue, of a metallic lustre, with red vessels running over it. It appeared a new growth of soft consistence. No photopsia or muscæ; general health impaired. It was thought to be malignant disease, probably a fungus, but one of the swellings began to point, and on its being punctured with a broad needle a large quantity of pus escaped. The swelling diminished, the opacity retreated further back, lost its metallic lustre, and some power of vision was recovered. She left the hospital on 7th May to have country air, but returned on 26th of the same month. The eyeball had again enlarged; vision was quite lost; the general health was much impaired, and she suffered great pain. Puncture now failed to give relief. The eyeball was extirpated, and the patient improved in all respects, and left the hospital again on 17th June.

On making a vertical section of the globe after its removal, a thick layer of curdy-looking strumous matter was found to be interposed between the inner surface of the sclerotica and the more internal tissues, the choroid and retina being pushed towards the centre, and the vitreous humour much diminished in quantity and disorganized. Dr. Taylor sums up with remarks on the close resemblance of the case to malignant fungus in its early stage, and on the complete and permanent relief afforded by extirpation.

The next papers are on Water and its Impurities, by Mr. Birkenhead, Lecturer on Chemistry and Toxicology at the Liverpool School of Medicine. A description of a case of True Hermaphroditism, with Remarks, by Dr. Rawdon, Pathologist to the Infirmary, and an account of the Anatomical Peculiarities observed during the winter session 1866-67, by Dr. Roberts, Demonstrator of Anatomy. These are very valuable communications, of a high scientific character, but it is sufficient to refer to them at present.

#### VIII. *Six Cases of Primary Amputation at the Shoulder-Joint.*

By H. LOWNDES, Surgeon to the Liverpool Northern Hospital.

In this paper Mr. Lowndes relates all the cases in which he performed primary amputation at the shoulder-joint in the Northern Hospital. Of the six, one proved fatal. The man had a fractured rib of the opposite side; got emphysema and acute pleurisy. The

immediate cause of death was the occurrence of secondary hemorrhage. In one of the cases acupressure was used, and Mr. Lowndes states that he had given this method a rather extensive trial in his operations, but he found it by no means so easy of execution as deligation. He was disappointed in obtaining immediate union by its use, and he often found it difficult to remove the needles. He has therefore given it up. In one case it failed to control the hemorrhage.

Mr. Lowndes states that amputation at the shoulder-joint has been more successful than any other great amputations in his experience. Of the six cases only one proved fatal, whereas of three primary amputations of the thigh all proved fatal—in fifteen of the leg below the knee five were fatal, a mortality of 33 per cent.

IX. *Table of Operations of the Liverpool Royal Infirmary from August, 1866, to August, 1867, with Remarks.* By CHAUNCEY PUZEY, House-Surgeon.

This table includes 330 operations, mostly performed for disease rather than for accident, as all the casualty patients from the docks are taken to the Northern or Southern Hospitals. An outline of the more important cases is given.

X. *Clinical Enquiry into the Results of Hancock's Operation, or the Division of the Ciliary Muscle in certain Serious Deep-seated Affections of the Eye.* By J. BIRKBECK NEVINS, M.D., Surgeon to the Liverpool Eye and Ear Infirmary, and Lecturer on Materia Medica in the Royal Infirmary School of Medicine.

Dr. Nevins contrasts iridectomy and Hancock's operation. He reports eight cases. The following extracts will show the author's conclusions:—

“GENERAL CONCLUSIONS.—The foregoing are not picked cases, but they have been taken as they presented themselves in practice. Cases of minor severity, in which the operation has been performed as a precautionary measure, have not been introduced. And those cases have not been mentioned in which it has been performed in the hope that it might possibly supersede the necessity for iridectomy, but in which the hope has not been fulfilled, but this operation has still been necessary. Such cases have been but few, and the patients have not been worse off in consequence of the proceeding, and they have had the chance given of being saved the more formidable operation.

“The cases reported above have been generally of a very grave character. The loss of vision has been extreme in some instances, and considerable in all, and the pain has generally been to an urgent degree. They have not been styled “glaucoma” in their titles, as this name has been the subject of so much controversy, that I have preferred describing the parts of the eye affected, and the symptoms, to using a term of disputed meaning. Some of the cases might, however, have been properly termed glaucoma, and others have been aggravated cases of rheumatic affection. It may be noted that the case in which the smallest amount of benefit was derived was the last of the series, and it was distinguished from all the others by the marked absence of pain. Sluggish strumous degeneration of the eye was its chief characteristic; and whilst those cases in which pain and rapid loss of vision were prominent features, were benefited to a degree beyond our earlier expectations, this, in which pain was absent, and there was no appreciable tension of the globe, was improved in a very minor degree.

“The operation itself is often, perhaps we may say generally, accompanied by an amount of pain, for which it is difficult to account; and it is sometimes three or four hours before this pain subsides; but when it does cease, the sleep succeeding the operation the first night, and the freedom from return of pain, are well-marked results of the operation.

“The operation generally leaves little or no mark of its having been performed, but if there is much straining on the part of the patient, by holding the breath or otherwise, a minute portion of iris sometimes protrudes in the wound, and a slightly oval pupil is the result. I have seen the accident occur sufficiently often to show that care must be taken to guard against it; but no permanent disadvantage arises from it, beyond the slightly altered figure of the pupil.

“On the whole, the result of the operations has been so decidedly favourable as to raise this mode of treatment to a high position in the estimation of my colleagues in the Eye Infirmary, as well as in my own; and these cases are published in the hope that they may promote our knowledge of a valuable and simple operation, which may be substituted, in a large proportion of cases, for the more serious one of iridectomy.”

XI. *Contributions to Practical Midwifery.* By A. B. STEELE, Lecturer on Midwifery at the Liverpool Royal Infirmary School of Medicine, &c.

*Cases Illustrative of the Use of the Forceps.*—In this paper Dr. Steele urges the early use of the forceps “in those cases in which labour has been inordinately prolonged, or in which there is reason to believe that it will prove tedious, although none of the symptoms



may have yet appeared which have been held to be essential indications for instrumental interference.'

Dr. Steele recommends a forceps having a pelvic as well as a cranial curve—an opinion in which none of our Dublin authorities will agree, however fully they may coincide in recommending the giving of assistance early where there may be necessity for it.

XII. *Observations on Fever in Liverpool.* By ROBERT GEE, M.D., &c., Physician to Liverpool Workhouse and Fever Hospital, Lecturer on Diseases of Children at the Royal Infirmary School of Medicine.

In this paper Dr. Gee analyses the causes of the great prevalence of fever in Liverpool. He shows that the situation of the town and the sanitary arrangements are very good, but that there is a large amount of destitution, intemperance, overcrowding, and dirty and slovenly habits. These serve as predisposing causes, and the exciting cause he believes to be direct contagion from personal communication between the sick and healthy.

XIII. *Observations on Lithotomy, being the Substance of Two Clinical Lectures delivered at the Royal Infirmary.* By E. R. BICKERSTETH, F.R.C.S.E.; Surgeon to the Royal Infirmary, and Lecturer on Surgery.

These lectures are founded on a case in which the bladder was divided into two compartments by a muscular ridge running between the ureters. The calculus lay in the uppermost of these, and it was only after a protracted search that it could be found and extracted. The man never rallied, and died the same afternoon. The author describes the several steps of the lateral operation, and illustrates them by diagrams.

XIV. *Table of Operations performed at the Liverpool Northern Hospital, with Remarks.* By JOHN BRADLEY, House Surgeon.

XV. *On the Mechanical Treatment of Some Forms of Dental Irregularity.* By JOSEPH SNAPE, L.D.S., Dental Surgeon to the Royal Infirmary, and Lecturer on Dental Surgery at the School.

This paper, which concludes the volume, is a most valuable and scientific essay on the treatment of dental irregularities. Mr. Snape gives drawings, showing the methods in which these irregularities should be corrected, and proves how effectually this may be

done without resorting to the ignorant, barbarous, and clumsy method of extracting teeth.

We cannot conclude our notice of this volume without congratulating our Liverpool *confreres* on the practical skill, scientific excellence, and thorough earnestness manifested by their contributions to its pages.

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*The Morbid States of the Stomach and Duodenum, and their Relations to the Diseases of other Organs.* By SAMUEL FENWICK, M.D., Member of the Royal College of Physicians; Lecturer on Comparative Anatomy at the London Hospital Medical College; Assistant Physician to the City of London Hospital for Diseases of the Chest; formerly Lecturer on Pathological Anatomy in the University of Durham. London: John Churchill and Sons, New Burlington-street. 1868.

THERE are few circumstances in the course of medical investigation and progress in the knowledge of disease more noteworthy than the frequency with which popular instincts, as it were, and the ordinary everyday habits of expression on the subject of bodily health and economics, give utterance to views which require scientific investigation and arrangement to enable us to distinguish in them the truth which underlies the erroneous method of expression.

How many are the instances which we can all recall in which the description of the "stomach, being out of order," has conveyed to the physician the saddening intimation of serious, or perhaps hopeless disease of other organs, the impairment of whose functions may be so slight as not to attract the attention of the patient at all, or possibly to escape even all but the most searching inquiry on the part of the physician. It is to this phase of diseases of the stomach "as influencing other portions of the system, modifying the progress of various maladies, and giving rise to changes in the texture and functions of the different structures of which the body is composed," that Dr. Fenwick chiefly directs our attention in the book now before us, late writers on diseases of the stomach having been chiefly occupied by the alterations in anatomical structure, and by the impaired efficiency of the organ itself.

The cotemporaneous affection of various organs in disease seemed to Dr. Fenwick so important that he entered extensively into a

series of microscopic investigations into the condition of all the principal structures in persons dying of different maladies, but, from want of material, was compelled to limit his observations to the digestive canal in order to determine whether, and how often, this part of the body is affected in different disorders, and how far such affections tend to modify the course or increase the gravity of the original malady. He has also endeavoured to keep prominently in view how far the derangements of digestion are capable of producing morbid changes in other parts of the body, and this particularly with reference to the causes of the tuberculous and atheromatous formations, and to the important question as to whether these may not be indications preceding their actual formation.

That Dr. Fenwick has brought powers of very high order as a physiologist and microscopist to the elucidation of questions arising from the consideration of such an abstruse subject is at once evident, as is also the fact that he has applied these powers in such a manner as to show that he combines with them the highest qualities of the practical, painstaking physician, and it is chiefly in the latter character that we desire to introduce him to our readers.

The introductory chapter gives a full description of the position, relations, structure, and functions of the stomach and duodenum, and of the various methods of conducting the physical examination of the patient:—

“Auscultatory percussion is by far the best mode of defining the extent and position of the stomach. I have been in the habit of using this means of examination for many years, and was not aware that it had been previously described; but the following extract from Dr. Aitken’s ‘Practice of Medicine’ shows that it has been applied to other organs:—‘A solid cedar cylinder, six inches in length, and one inch in diameter, cut in the direction of the fibres, and with an ear-piece attached, is applied to the centre of the præcordial region, while the ear is applied to the other end; percussion is then made by another person from the point near where the cylinder is applied towards the limits of the heart in every direction. So long as percussion is made over the body of the heart a distinct shock is felt directly in the ear; but as soon as the limits of the heart are passed this sharp shock immediately ceases, even in passing from one solid organ to another in contact with it, as from the heart to the liver.’—*Drs. Camman and Clark.*

“The manner in which I employ ‘auscultatory percussion’ to the

\* Aitken’s Science and Practice of Medicine, Vol. ii., p. 706.



stomach is as follows:—The patient being laid on his left side, so that the gas contained in the stomach may rise to the pyloric region, the cup-shaped end of a ‘Camman’s Stethoscope’ is applied to a part in the epigastrium, where, by percussion, I have ascertained that the tympanitic sound exists. I then strike the epigastrium sharply with the fingers, commencing close to the point at which the stethoscope is placed, and mark with ink the line at which the shock of the blow ceases to be felt directly in the ears. By moving the patient, so that he lies first on the back and afterwards on the right side, the gas is made to distend each region of the stomach in turn, and so the outline of the whole organ is completed. There is a chance of error if the stethoscope be placed over a dilated colon instead of the stomach; but when there is reason to suspect that this is the case, the patient should be examined before food, and the boundaries of the stomach having been marked out, the examination should be repeated when the organ is in a state of distension.”

The microscopic examination of vomited matters affords valuable information, and Dr. Fenwick gives clear directions as to the best plan of procedure.

He also treats fully of the effects of *post mortem* solution of the stomach, and says that the description given by John Hunter, who was the first to notice it, can scarcely be improved upon:—

“In discussing this subject, the first point to be settled is, whether considerable softening can take place in the gastric mucous membrane as the result only of changes occurring during life. It is almost impossible to determine this point on the human subject, on account of the long time after death at which *post mortem* examinations are usually conducted. But in the lower animals there is not the same difficulty. In cattle plague, for instance, we find the mucous membrane of the stomach very red, thickened, and often excessively soft. In such cases there was no ground for doubt as to the cause of the softening, for the animals had been slaughtered, and the stomach removed and examined immediately. We can, therefore, arrive at no other conclusion than that the mucous membrane of the stomach is liable, like other organs of the body, to softening from inflammatory action alone.”

While admitting that in the majority of cases the softening is due to *post mortem* solution, Dr. Fenwick is of opinion that the following experiments show that the appearances presented by the mucous membrane, even when it has been acted on by the gastric juice, depend much upon its condition during life:—

“I placed in an artificial digestive fluid three pieces of human stomach, one of which was healthy; the second presented appearances of fatty

degeneration along with destruction of the tubes; in the third the tubes were mostly replaced by fibrous tissue, and the vessels were loaded with blood.

"After a few hours' digestion, the first piece was reduced to a pulp, capable of being washed away by a gentle stream of water; the second was gelatinous, of a yellow colour, transparent, and although softened, tolerably firm; the third formed a black, opaque, gelatinous mass, quite unlike either of the others.

"It is very evident from this experiment that, although we may attribute the act of softening in most cases to *post mortem* digestion, the various appearances of the mucous membrane should be carefully noted, as they may represent very different conditions that had existed during life."

From the much greater effect exercised by an artificial gastric fluid on healthy than on inflamed or otherwise diseased gastric mucous membrane, Dr. Fenwick further concludes:—

"As, therefore, the amount of the gastric juice secreted is smallest, and the state of the mucous membrane renders it least liable to be affected when it is most diseased, so we find that the cases in which there is the greatest amount of morbid change are those which are least affected by *post mortem* digestion."

In noticing the quantity of digestive juices daily thrown out from the blood vessels, and again absorbed into the circulation after having been enriched by the products of digestion, estimated by Bidder and Schmidt at from fourteen to sixteen pounds, Dr. Fenwick remarks that this calculation, founded on the result of experiments on the lower animals, is probably below the truth, it having been found that the mean daily quantity secreted by a woman affected with gastric fistula was thirty-one pounds, or more than one quarter the weight of the whole body.

"It is impossible to consider this vast amount of fluid daily circulating through the digestive canal, without believing that any long-continued diminution in quantity alone must be liable to derange the functions of some of the other organs of the body. Moreover, we are as yet ignorant what effects the non-excretion, or the resorption of the peculiar principles elaborated by this vast extent of glandular structure may have upon the general health; whether, for instance, the non-excretion or the resorption of the pepsin and lactic acid which must occur in many of the diseases of the stomach, gives rise to changes in the blood in the same way as the non-elimination of urea does in affections of the kidneys."

The second chapter treats of "Acute Gastritis," of which, as an

actually existent disease, Dr. Fenwick details some well-marked cases, with the *post mortem* appearances.

Many of the older writers mention inflammation of the stomach as often occurring from suppressed gout, but of late years the existence of this form of gastritis has been very generally denied. It has been supposed that the cases formerly described were only instances of severe indigestion.

A very striking case of this form of disease is here given at considerable length, and Dr. Fenwick remarks:—

“There can be no doubt that it was an instance of acute gastritis; and the rapid disappearance of the malady after the invasion of the gout points to a connexion between the inflammation of the stomach and the affection of the joints. It was in reality a case of poisoning; the irritating material being lithic acid in the blood, instead of arsenic or antimony directly applied to the mucous membrane.”

The flatulent dyspepsia, not infrequent in gouty subjects, which, notwithstanding its apparently serious symptoms—the epigastric pain, but without tenderness or vomiting, the pale, anxious face, the feeble pulse, the quick and constrained respiration—is generally relieved by counter-irritation, and a diffusible stimulant, must not be confounded with acute gastritis.

No instance of acute gastritis having attacked individuals in perfect health has ever come under Dr. Fenwick's notice.

The chapter on Sub-acute Gastritis is equally valuable, and traces the connexion between “bilious attacks” and impending phthisis. Persons who become affected with phthisis are peculiarly subject to these attacks; but they often cease before the symptoms of the disease of the lung manifest themselves. The tendency to them is more frequently inherited than any other form of dyspepsia; they frequently arise from fermentation of the food, and in such cases the green-coloured vomited matter will be found to contain *torulæ*.

“In cases of fermentation the diet should be carefully regulated. Tea, coffee, milk, arrow-root, rice, and similar fluids, so often forced upon the patient during a ‘bilious attack,’ should be forbidden; and iced water, soda water, Seltzer water, and beef-tea should be substituted.

“As regards remedies, I have generally prescribed creasote in doses of one drop, combined with magnesia; but if there be much subacute inflammation of the mucous membrane the hyposulphite of soda will be found more useful. For some time after the attack has subsided, vegetable tonics in combination with acids or alkalies are required.”



The occurrence of subacute gastritis in anemic females has not escaped observation.

“In most of the instances of subacute gastritis occurring in the female, it will be found that the catamenia are deficient. In various affections of the uterus we meet with subacute inflammation of the stomach, but the most marked cases are seen in persons in whom narrowing of the canal of the cervix uteri prevents the free excretion of the catamenial discharge.”

A case is here given in which the canal of the cervix having been freely incised, with scarcely any other treatment, the gastric disorder ceased, and the patient regained her health and strength.

“Care must be taken that the gastritis is really dependent upon the uterine affection, for these diseases may co-exist without there being any connexion between them.

“We should therefore ascertain before commencing the treatment whether the gastric symptoms are greatly aggravated during the catamenial period, and whether there be really such a condition of the uterus as to require surgical interference.”

Those who have made diseases of the digestive organs a special study will naturally turn to the chapter on ulcerations. The subject is confessedly a difficult one to treat, and the author has adopted a classification of the different varieties founded upon their pathology, and he has worked it out well.

Chapter IV., on the Condition of the Stomach in Fevers, begins with a description of the morbid appearances of the stomach in cattle plague.

“Where the animals had been slaughtered within a few hours of their being attacked by cattle plague, the morbid appearances in the mucous membrane of the stomach were limited to great congestion of the blood-vessels, and to the stripping off of the conical epithelium, which in a normal state covers the upper ends of the gastric tubes. In place of this epithelium there was an exudation of granular matter, and, in consequence of the bare condition of the ends of the tubes, their openings on the surface were unusually large and prominent. The stomach always contained some mucus, in which were masses of epithelium presenting the shape and appearance of the tubes from which they had been removed.

“When the disease had existed a little longer, the round gastric cells were affected in addition to these changes. They seemed to have been loosened from the basement membrane, and were irregularly scattered through the whole length of the tubes, as though in process of expulsion;

whilst between them was a deposit of granular material, showing that the inflammation had now reached the lower ends of the tubes.

“Where death had been deferred until the second or third day of the disease, all the normal gastric cells had disappeared, and the tubes only contained granular matter with a few thin, flat, and very transparent cells. The tubes were consequently much smaller, and were so soft that sections through their whole length were obtained with difficulty. But in addition to these changes the tubes, which in the earlier stages could be easily separated from each other by gentle pressure, were now found to be closely united together, and cells and nuclei could be observed between them. The blood-vessels were everywhere much injected, and ulcerations were observable on the surface of the membrane.

“The morbid appearances were not confined to the stomach; the mucous membrane of the intestines was similarly affected. Effusions of blood or of granular matter were observed in the intestinal villi and glands, and in the later stages of the disease ulcerations of the mucous membrane had taken place in various parts.”

Arguing from the analogy between cattle plague and many other epidemics affecting man in hot climates, such as cholera, yellow fever, dysentery, &c., Dr. Fenwick is of opinion that similar morbid actions may occur in the eruptive fevers with which we are more familiar at home, and in which the skin seems to act as an eliminator of the animal poison. He states that in scarlatina the mucous membrane of the stomach and bowels is inflamed; that desquamation occurs on this membrane as it does on the skin; and that the form of inflammation is analogous to that which we observe on the external surface of the body, and gives sixteen observations in which this view is supported by the results of *post mortem* examinations; and Dr. Fenwick observes:—

“As in all of them the mucous membrane of the digestive tube was more or less inflamed, I think it probable that this condition is a general accompaniment of the fever. Since, however, the inflammation varied greatly in degree in different persons, and also in different organs in the same individual, it will, I think, be found that the intensity with which the mucous membranes are attacked varies according to the type of the epidemic, and the age and constitutional peculiarities of the persons suffering from the disease. The severity of the affection of the stomach and intestines is not necessarily in proportion to that of the skin and throat; for in some of the above cases little redness was observed in the latter, when the former were intensely inflamed.”

It is difficult to prove that desquamation of the epithelium of

the stomach and intestines takes place in scarlatina, and Dr. Fenwick's chief reason for the opinion that such occurs is derived from the microscopic examination of the contents of the stomachs of those who have died of the fever. It is probable that the mucous membrane assists the skin in its office as an eliminator of the poison:—

“This is not, however, sufficient altogether to account for its disappearance, as will be seen in the following experiment. Some sections were made of the mucous membrane of the stomach of a person who had died of scarlatina in the second week of the disease. When examined microscopically, the tubes were observed to be distended, and the cells very obscure; but, after digesting the sections in a weak solution of nitrate of potash at blood heat for some hours, a complete change in the appearance was produced. The granular matter was entirely removed, and a cavity could be seen in the closed ends of the tubes bounded on all sides by the cells with which the basement membrane was lined.

“If, then, the granular material remains at the closed ends of the tubes after the layers of cells at their upper and free ends have come into contact, it is evident that desquamation alone is not sufficient to account for its ultimate removal. Its ready solubility in the saline solution naturally excites the suspicion that it may be resorbed into the circulation, and that in this way the mucous membrane is gradually restored to its normal condition.

“We know that albumen in a state of solution, when injected into the veins of an animal, is eliminated by the kidneys; and, as in scarlatina, the urine becomes albuminous in the majority of cases in the second or third week—the very time at which the skin and mucous membrane begin to lose the material deposited in them—we may conclude that in this fact we see an explanation of the method which nature takes to repair the injury inflicted upon the tissues by the disease.”

The general opinion is, that albuminuria after scarlatina is produced by the application of cold to the surface of the body whilst the functions of the skin are enfeebled by the fever. But Dr. Fenwick considers this to be contradicted by the fact, that in many of the worst cases of albuminuria the rash had been scarcely observed, and that, consequently, the skin had been but little affected. It is, besides, generally remarked that the kidney is seldom implicated in cases of malignant scarlatina. In one instance of such form of the disease which Dr. Fenwick had the opportunity of making the observation, he found that although the



blood remained so fluid that the skin, and even the cartilages of the trachea, were deeply stained with it, he could find no anatomical alterations either in the glands of the skin or in the tubes of the stomach, excepting the dark red colour of these structures:—

“This is the only case of scarlatina in which I have failed to discover structural changes in the skin and digestive canal; and if further observation should show that this is usual in the malignant form of the disease, it will serve to explain how it is so rare to find in it the subsequent affection of the kidneys.

“I have entered upon this point at some length, because it is one of practical importance, and not of merely theoretical interest. It is above all things necessary that we should in the treatment of disease distinguish between our friends and our foes; between those phenomena that tend to restore the structures of the body to their normal condition and those that only produce disorganization of the tissues. To the former I believe we must refer albuminuria after scarlatina; and the small amount of mortality that accompanies this condition, the comparative rarity with which serious kidney disease follows it, and the limited period during which it is liable to occur, all tend to favour the opinion I have advanced.”

So much space having been devoted to the first few chapters of this work, little is left for the remaining portions.

The conditions of the stomach in diseases of the heart and liver are fully considered; also, the probable connexion between diabetes and a diseased state of the pancreas, and in support of this view a number of cases are quoted from various authors of the co-existence of some form of disease of that gland with diabetes:—

“We find that in this complaint the quantity of sugar chiefly depends on the amount of starch taken as food. We might, therefore, reasonably expect to discover the cause of the disease in the organs whose office it is to convert the starch into sugar. The saliva, the intestinal juice, and the pancreatic fluid, all seem to possess this property, and it may at first sight appear absurd to suppose that an increase in the quantity of sugar should arise from a diminution in the secretion of any of the glands concerned in the process. But I conceive this apparent paradox is susceptible of solution. We must remember that nature never confers upon different structures precisely the same duty. When various organs seem to perform the same office, it is by supplying by their union properties not possessed by any of them alone. Now, as in the digestion of starch it is requisite that the sugar should be of such a nature as to permit of its subsequent changes, may we not conjecture that the office of the

pancreas is to finish the process commenced by the other glands, and that a diminution or alteration in its secretion may allow of the absorption of a material of a character unfitted for that decomposition in the circulation which it appears normally to undergo? . . . . .

“It seems to me highly improbable, from the preceding observations, that the disease of the pancreas is a mere accidental accompaniment of diabetes; but, at the same time, we must not expect that it will be found in all cases to be the cause of the disease.”

Renal dyspepsia and gastritis, the condition of the stomach and duodenum in phthisis, tuberculous dyspepsia, dyspeptic phthisis, the nature of tubercle illustrated by observations in man and the lower animals, and its points of resemblance and dissimilarity in some important respects with the poisons of fever and syphilis, are all treated in a manner which merits, and will reward, the attention of the reader:—

“Tubercle, however, seems to differ from the poison of fevers in the difficulty or impossibility of its elimination through the emunctories of the body. Each breaking up of its structure, and consequent resorption, leads to a fresh series of deposits in other and more distant organs, and thus the case is often hurried to a fatal termination. As regards the difficulty of its elimination it resembles syphilis; for in this complaint the irritant matter is successively deposited in different structures, exciting in them what are termed the primary, secondary, and tertiary forms of the disease. This similarity gives us some slight grounds for hope that, with the advance of science, substances may be discovered which will act—as mercury and iodine seem to do in syphilis—in rendering the elements of tubercle capable of elimination by the excreting organs of the body.”

The chapter on weak digestion contains many highly valuable suggestions and remarks on treatment generally, but especially as regards diet:—

“Thus, connective tissue is more slowly dissolved than muscular fibre, and therefore the flesh of beef, which contains more of it than that of mutton, is digested with greater difficulty. For the same reason, fowls and game may be often taken with advantage, where the firmer fibre of beef and mutton would produce indigestion. Those parts of the animal which contain the smallest amount of fibrous tissue, such as tripe, the loin of the sheep, or the breast of birds, are most readily digested. Certain methods of cooking, such as roasting and broiling, are useful, in rendering the muscular fibre more easily separable; whilst boiling, by removing the more soluble parts, leaves only those constituents which

longer resist the action of the stomach. Some kinds of food, such as pork, salmon, and herring, are apt to disagree, on account of the quantity of oily matter they contain."

The connexion between affections of the brain and digestive organs is a subject on the nature of which no one engaged in the practice of medicine can have been without serious cause for speculation and anxious searching after truth. Dr. Fenwick's description of nervous dyspepsia is most graphic and truthful:—

"The most characteristic symptom is great mental distress. This is generally mentioned as a sense of despair; in many cases it is accompanied by a dread of impending insanity. It almost always seems to be occasioned by the disorder of the digestive functions."

We have frequently been strongly impressed by the painful descriptions given by dyspeptic patients of their mental state, particularly by those who had been debilitated by residence in tropical climates. One lady, naturally gay and cheerful, described to us, with tears in her eyes, that it was as if she was surrounded by the "blackness of darkness." The anomalous sensations of patients so afflicted, which they attempt to describe with a minuteness, the self-conscious inadequacy of which, to convey anything like a real idea of their sufferings, only adds to their distress, are well enumerated by Dr. Fenwick; and the treatment which he advises of thorough mental relaxation, change of scene and climate, attention to diet, etc., etc., is highly judicious.

The remarks on the morbid changes in the stomach and intestinal villi of persons who have died of cancer of other organs, are highly interesting, and open out a new and important field of inquiry. Dr. Fenwick details results obtained from the microscopic examination of the stomach in fifty-seven, and of the intestines in twenty-three cases of cancer. Wasting of the mucous membrane, enlargement of the solitary glands, and their distension with cells and nuclei, which displaced the gastric tubes, and sometimes even the muscular fibres, the firm adhesion among the tubes, which, however, still contained normal gastric cells, were observed in the earlier stages:—

"Later, the solitary glands appeared empty in the centre, but surrounded by thick layers of nuclei; the tubes could no longer be traced in their whole extent, but could be recognized only as bulbs filled with fatty cells, or as lines of cells, whilst the whole tissue was obscured by fatty and granular matter. In the last stages the solitary glands had



disappeared, and the tubes were replaced by fibres, the replacement of glandular structure by fibre being the ultimate metamorphosis."

In other cases:—

"Although no nuclear deposit was present the structure of the stomach was seriously injured by an increased formation of fibrous tissue."

"In only three out of twenty-four cases of cancer of the uterus was there any serious change in the mucous membrane of the stomach similar to that described as so often occurring when the disease had affected the breast."

In general in such cases the changes in the gastric mucous membrane partook more of the nature of fatty degeneration; the tubes were soft, and could be easily separated from each other:—

"But the basement membrane was exceedingly thin; they contained gastric cells, more transparent than usual, breaking down into granular matter with very slight pressure. The mucous membrane was but little diminished in bulk."

From his numerous observations on this subject, Dr. Fenwick deduces the following hypothesis into the consideration of which we have now neither time nor space to enter more fully than to state our appreciation of its highly interesting and exceedingly ingenious nature, and our belief that it is one in which Dr. Fenwick has struck upon a new vein for further investigation:—

"As the changes in the stomach are most frequent in cancer of the breast, the organ in which scirrhus is most common, and least frequent in cancer of those organs which are especially liable to the attacks of the softer varieties of the disease, it is, I think, probable that the alterations in the gastric tubes will be found to co-exist only with the harder forms of malignant growth."

The book closes with an appendix containing a statistical inquiry into the causes of dyspepsia, which is interesting to a certain extent; but its various conclusions being drawn from the observations of a limited number of cases, can only rank as contributions towards a common fund of information on such points, if other observers were to take up the same subject, and can hardly be looked upon as statistical facts.

Dr. Fenwick's observations as to the various structural alterations which he describes are illustrated by well executed lithographic plates, drawn by Mr. Tuffen West, from original specimens, with the camera lucida.

Altogether, we can with confidence recommend the book to our readers, as well to those who may be in a position to corroborate or confute Dr. Fenwick's observations by their own, as to those who devote themselves more to strictly practical studies.

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*Photographs of Eminent Medical Men of all Countries, with Brief Analytical Notices of their Works.* Edited by WM. TINDAL ROBERTSON, M.D., M.R.C.P., Phys. to Genl. Hosp., Nottingham. The Photographs by Edwards and Bult. London: Churchill. Vol. II., No. 8. Small 4to. Pp. 21.

IN November, 1865, we noticed in favourable terms the early numbers of this work. We are now glad to see it progressing, and we must regard its having progressed, notwithstanding the death of its early projector, as a proof that it has supplied a public want, and that it has been fortunate enough to meet with a new editor capable of conducting it with the care, taste, and discretion that characterized it in the first instance.

The present number contains photographs of Dr. T. K. Chambers, of Dr. Druitt, and, what will make it most interesting to the readers of this journal, of Dr. W. D. Moore, whose name has been familiar to them for very many years as the author of translations and original communications of very great value contributed to our pages. It will be seen by the analytical notice of his works, however, that ours is not the only journal enriched by the pen of Dr. Moore, nor has he confined himself to writing for journals; he has translated several entire works for the Sydenham Society, and thereby added not a little to its eminence, and in many of the medical works of the highest character published of late years in Dublin, he is referred to as having assisted the authors in their production. One cannot help being amazed at the amount of work shown in this memoir to have been accomplished by Dr. Moore, and surely the contemplation of such industry and perseverance must have a beneficial effect.

The photographs are admirably executed; the two volumes now complete are really very beautiful books, and we strongly recommend our readers to avail themselves of the opportunity for obtaining these life-like portraits. The series already contains many of our English friends, with whose names and writings we are all familiar, and we hope many more Irishmen will soon be added to it.

1. *St George's Hospital Reports.* Edited by J. W. OGLE, M.D., F.R.C.P., and TIMOTHY HOLMES, F.R.C.S. Vol. II. 1867. London: Churchill and Sons. 8vo, pp. 486.
2. *Catalogue of the Pathological Museum of St. George's Hospital.* Edited by J. W. OGLE, M.D., F.R.C.P., and TIMOTHY HOLMES, F.R.C.S. 8vo, pp. 886.

IN a recent number we received Hospital Reports from several of the great hospitals of London. We have now to introduce to our readers a report from another of these hospitals, one whose teaching must ever be looked up to if it were only because of the great men whose names are identified with its history. We have also before us a catalogue of the pathological museum, which is in itself a volume of great value and importance. Generally speaking, catalogues of museums are of little use, except within the walls of the museum itself. In this one, however, the histories of the preparations are given with so much accuracy that they almost amount to clinical records of the cases with which the reader is invited to compare the pathological specimens. Moreover, where it was thought desirable, and it has been possible to do so, the result of a microscopical examination of the specimens has also been given. The result is that this so-called "catalogue" is a compendium of pathology whose value cannot be over-estimated, and well worthy of the reputation of the hospital from which it has come. Our space, however, will only admit of our noticing the papers in the Hospital Report in detail.

I. *Contributions to the Surgery of the Head. On Exostoses of the Skull.* By PRESCOTT G. HEWETT.

In the first volume Mr. Hewett communicated a paper on the deviations of the base of the skull occurring in chronic hydrocephalus, in which he portrayed some very remarkable deformities resulting from this disease. In the present contributions to the surgery of the head he discusses exostoses of the skull. He passes in rapid review the history of these growths, but without going minutely into their pathology; and as to their treatment, he states that so far as the exostosis is concerned medical treatment can be of no use, though if there be inflammation of the surrounding osseous tissue proper treatment for this will be most serviceable.



Operative interference, he says, should not be attempted, unless the increasing size or the peculiarity of the position of the growth make it imperative.

## II. *Clinical Cases of Insanity.*

This is a paper by Dr. G. F. Blandford, Lecturer on Psychological Medicine at the school. The cases are of two classes, and are meant to illustrate the curability of insanity. In the first class we have three cases of melancholia of seven, six, and five years' duration respectively, in which recovery took place, showing how cautious we should be in forming an unfavourable prognosis, even where such long periods have elapsed. In the first case the patient was obliged to act in some things for himself, and so the quiet monotony of asylum life was broken up, and he soon came to enjoy life most thoroughly and keenly. The case leads Dr. Blandford to make the following remarks, in which we fully concur:—

“Insanity may be described, if not defined, as a want of harmony between the mind of the individual and his external surroundings. As life is ‘the continuous adjustment of internal relations to external relations,’ so any cessation in this process of adjustment causes disorder mental or bodily. If the relations are themselves altered—if a man loses his fortune or his friends, he must come into harmony with his new set of circumstances, or he perforce is thrown out of equilibrium, and ‘loses his head.’ If his brain becomes so disordered that he fancies his circumstances are all changed, the same thing happens; and when he attempts to right himself by force, or to rid himself of the entire burden, he is shut up for safety and for cure. Now our object, of course, is to bring a patient back to his former condition—to restore the harmony which existed, and which ought to exist, between him and the world in general. This we must, above all, try to accomplish. There is such a thing, however, as bringing a patient into harmony, not with his former life, but with asylum-life; and this is what happens not unfrequently, and happened in the case of this gentleman. In the asylum he had everything that he wished for. Self-indulgent by the nature of his malady and by constitution, fond of being alone with his books and papers, indulged and kindly treated—for no one could be harsh towards the gentlest of men—he might have gone on to the end of his days, enjoying the lazy luxury of his mild melancholy, had not the harmony of his new life been in turn broken up and marred.”

In the second class, we have cases of transitory mania. There are two forms of transitory mania—1st. The epileptic, which M.

Marcé says is the more common, but Dr. Blandford thinks this very doubtful. In the non-epileptic form there may be all the usual violence, delirium, and delusions, running a rapid course, and terminating in recovery in a week or two; and it is very important that a correct opinion should be formed as to the nature of the case, but the diagnosis is admittedly difficult. In the following paragraph Dr. Blandford sums up pretty nearly all that can be said on the subject:—

“How are we to tell whether the attack will be transient or not? To decide this at a glance is not easy; but it is to be remembered that two or three days will solve the question for us. The symptoms both of transient and protracted mania vary so much in different individuals, that it is difficult to lay down strict rules of diagnosis. It is likely, however, to be transient, if its invasion is very sudden, and if there is a definite and sufficient mental cause, as a shock or fright. It is likely to be prolonged, if its approach has been very insidious, and if there is no assignable cause. If the bodily condition is much affected; if the tongue is brown and dry, the urine scanty and high-coloured; and if the bowels can hardly be moved by the strongest purgatives—it is not likely to pass off in a few days. If, on the other hand, the bowels are easily and freely opened, if the urine is copious and pale, and the tongue pale and moist—we may hope that it will be soon over, especially if there is extreme violence, bearing no proportion to this slight bodily disturbance. And our decision will be aided by the advent of sleep if this occurs in a day or two. If the disorder is to run the ordinary course of acute mania, sound and long sleep is not to be expected at so early a period. If former attacks have occurred, our diagnosis will be materially assisted by the history of them.”

### III. *Diseases of Artizans.*

Dr. J. C. Hall, of Sheffield, but a former pupil of St. George's Hospital, proposes to give a series of papers on this subject. In this, the first of them, he describes “The Sheffield File-cutters' Disease.” An account is first given of the process of file manufacture, from which it appears the workers are greatly exposed to lead dust; and the “File-cutters' Disease” is really lead-poisoning. Some remarkable cases are given, among others showing that the blue line on the gums may last eighteen or twenty years after all exposure to lead shall have ceased.

### IV. *On Certain Epileptic Phenomena.* By EDWARD FOX, M.D.

Dr. Fox regards the division of epileptiform attacks into centric

and eccentric as a fallacy, although convenient in our present state of ignorance; but, unlike many recent writers, he seems to regard eccentric causes as most important. He believes, however, the attacks often recur, though the eccentric cause, such as a worm, or undigested meal, may have been removed. It may be, he says, that the first starting-point of every epileptic attack is some eccentric impression, though this cannot be recognized by an observer, or even by the patient himself, and it is so difficult to prove the existence of these eccentric impressions that practically a very large number of epileptic attacks fall under the head of centric, where the true explanation lies rather in the inadequacy of our powers of observation, or our means for their recognition.

The aura is not, as Dr. Fox says, a necessary phenomenon of eccentric epilepsy. In 112 cases noted, it was only present in 10; yet many patients gave an account of some sensation that warns them of the approach of a fit. This warning differs from an aura, and seems often to be the commencement of the fit before the loss of consciousness occurs. It takes various forms, according to the portion of the nervous system first attacked by the arterial spasm. Dr. Fox believes that in the fully developed attack the nervous centres that rule motion may be affected by the arterial spasm, whilst the external convolutions remain free; and, in some cases, the latter may be affected, while the centres of motion are unaffected, and thus there may be convulsions without loss of consciousness, and loss of consciousness without convulsions. To us this appears a mixing up of two different affections. How often do we see a child have convulsions from teething or some local irritation, and yet we do not call such cases epileptic. We prefer, with Todd, to look on loss of consciousness as the essential part of epilepsy; and we would not at all consider such a case as the following one of epilepsy, and we suspect there was more loss of consciousness in the other cases recorded under this head than the patients were aware of:—

“E. P., aged sixty-one, a widow. Every day, and many times a day, for six months before I saw her, she suffered from a severe convulsive condition. She never loses consciousness in the least, and does not even feel confused; but has most violent clonic convulsions of the mouth, jaws, eyelids, and all the facial muscles. The head is shaken from side to side with intense rapidity; the arms and hands are in a similar state of clonic convulsion. The legs are not always affected; and when they are not, she is able to stand through the whole of the attack. In all



respects the convulsions of this case closely simulate epilepsy. She has no tonic spasm; no subsequent headache or drowsiness; no loss of memory, or of any mental faculty; no paralysis. She has never had any other kind of fit. The only effect of these attacks is the fatigue consequent on the violence of the convulsion. I have several times witnessed these attacks, and am certain that the mind is wholly unaffected throughout. It may be well to state that under bromide of potassium the convulsions have diminished in frequency and intensity, and for some months past have scarcely troubled her at all whilst she has persisted in the remedy. They recur as before whenever she attempts to leave it off."

While Dr. Fox regards the theory of arterial spasm as a great gain in explanation of the phenomena of epilepsy, he looks on the blood as the real seat of the disease, though it may not be easy to recognize the precise lesion in the fluid, and this lesion may vary in different individuals.

Notwithstanding Brown-Séquard's experiments, in which clonic convulsions were caused by injecting venous blood into the system, Dr. Fox believes that want of arterial blood in the brain and spinal cord is the true cause of the clonic convulsions, and their cessation, he argues, is the result of a restored supply of blood rather than of exhaustion of the nervous powers.

In the treatment, Dr. Fox has little faith in anti-spasmodics, or preparations of zinc. His first object is (by hygienic means, food, and good habits) to improve the state of the blood itself; and secondly, to try to modify the impressibility of the arteries themselves, or of their nerves. For this latter purpose he speaks favourably of belladonna and the bromide of potassium. He has notes, more or less complete, of fifty-two cases, in which bromide of potassium, in at least 20-grain doses, was found satisfactory. In many cases it was combined with cod-liver oil, but he has notes of ten cases in which it failed, in one of which belladonna was more successful, though it generally disappointed him. In some cases the long-continued use of quinine was useful, even though there was no history of malaria. In several cases steel and strychnia proved very beneficial, whilst in three others the use of phosphoric acid and phosphate of iron were attended with good results, when other means had failed to give relief.

*V. Encephaloid Disease of a Retained Testicle, with Remarks, including a Summary of Twelve other Similar Cases.*

After detailing these cases, Mr. Hodgson, the author of this

paper, considers the question of operation, and declares himself in favour of an early operation as offering at least some prospect of permanent cure.

#### VI. *Thermometrical Observations in Typhoid Fever.*

In this paper Dr. Reginald E. Thompson sums up observations made during three years on forty-seven cases of typhoid or enteric fever, and, in concluding, formulates them as follows:—

“1. The thermometer points out a distinction between typhoid fever and some other diseases which often simulate it, viz., acute granular kidney, meningitis, peritonitis.

“2. The thermograph of typhoid differs from that of other fevers, and especially in the mode of favourable termination.

“3. An additional distinction between typhoid and typhus fever is thus given.

“4. It is possible by its use to appreciate intestinal lesions before they are recognized by the ordinary symptoms.”

#### VII. *Aphasia and Agraphia.*

This paper is by Dr. W. Ogle, Lecturer on Physiology at the Medical School. It opens with a history of the question from Gall's locating of the faculty of speech in the anterior lobes of the brain which lie above the orbital plates, and Bouillaud's discovery, in 1825, that loss of speech and of the memory of words is an inevitable consequence of a disorganization of the anterior parts of the cerebrum, to the further discovery made by M. Dax, of Montpellier, in 1836, that the faculty that Gall and Bouillaud had lodged indifferently in either anterior lobe, was in reality located only in the left. Dr. Ogle shows further that this statement was repeated by the son of M. Dax, who added the observation that the faculty was located in that portion of the left lobe that borders on the fissure of Sylvius. The whole subject was neglected till 1861, when, in consequence of a discussion at the Anthropological Society, M. Broca was led to examine the cases that presented themselves to him, and confirmed the statements of M. Dax with the further precision of fixing the faculty of speech in the posterior third of the inferior frontal convolution.

After the very full and exhaustive essays on aphasia, recently published in this Journal by Dr. Banks, in February, 1865, and by Dr. Popham, in August, 1867, it is not necessary to go further into Dr. Ogle's paper. He recounts twenty-five cases, five of

which he had seen himself, in one of which he had made a *post mortem* examination. The remaining twenty cases are collected from the books of the hospital, where they had been recorded by gentlemen not conversant with Broca's theory, and, therefore, they leave some details unnoticed. We subjoin Dr. Ogle's deductions from the entire series:—

“*General Result of the Cases.*—We have, then, twenty-five cases in which speech was lost or much impaired, and in all of them there was disease of the left hemisphere. This was shown either by *post mortem* examination, or by sure symptoms during life. In some few there was, it is true, disease on both sides of the brain, but in the large majority the lesion was confined to the left. There is not one single case in our registers in which speech was seriously impaired and the left side of the brain found sound. These cases, even by themselves, would be strong evidence of the correctness of Dax's statement; but when taken in conjunction with the results of other observers, they furnish the most irresistible proof that, in some way or other, the left hemisphere is more intimately connected with the faculty of language than is the right. Thus, in thirty-one cases of aphasia collected by Mangan at the Bicêtre and Salpêtrière, there was without exception paralysis on the right side. M. Trousseau, himself an opponent of Dax and Broca, collected in 1865 all the cases of aphasia he could find. In 125 of these cases there was palsy on the right side, in ten only on the left.

“It has been, however, objected that disease of the left hemisphere is very much more common than disease of the right, and that therefore it is only natural that there should be more cases of aphasia associated with the former than with the latter lesion; in fact, that disease of either side will equally produce aphasia, and of that side more frequently which is itself more frequently diseased. This objection would be a sound one, were disease of the left hemisphere more usual than that of the right in any such proportion as 125 to 10. But this is far from being the case. It would indeed appear, from such statistics as I can find, that the left side of the brain is really more frequently the seat of disease than is the opposite one, but only in a very small proportion. In 74 cases of hemiplegia which I collected at St. George's, the right side of the body was paralysed 43 times, the left 32. Andral gives 73 cases of right hemiplegia against 63 of left; Baillarger (at the Salpêtrière) 58 cases of right palsy, 52 of left. Putting these figures together, we have 174 cases in which the right side was paralysed against 147 in which the opposite side was affected. It is quite plain that this slight difference is utterly inadequate to account for the statistics of aphasia given above.

“Admitting, then, Dax's statement to be correct, what is to be said as



to the exceptions to his law? How are they to be explained? In the first place, I would remark that they are excessively few. M. Trousseau, with every wish to produce evidence against Dax's and Broca's theory, could only collect ten such. In seven of these ten there was no *post mortem* examination. There was paralysis of the left side, and it was inferred that the right side of the brain was diseased, and that the opposite side was sound. But to this it was objected with much truth, that disease of one hemisphere does not in any way imply soundness of the other. There may in these cases have been a lesion on the right causing left hemiplegia, and a lesion on the left in Broca's region causing loss of speech, but no paralysis. This lesion may have been limited to the grey matter of the surface; and there are several cases in this paper which show that there may then be loss of speech but no paralysis (conf. cases xvi., xvii.) How careful one must be in estimating these apparently exceptional cases, if there be no autopsy to guide us, is shown by case xv. Had there been no examination of the brain in that case, it might have been quoted as contradicting Dax; for the left arm was affected, not the right. But, on *post mortem* examination, it was found that there was obstruction in the vessels of both hemispheres. Secondly, it must be remembered that there are some few cases on record—so few, indeed, as to make this explanation a very improbable one—where disease of the left hemisphere has been accompanied by hemiplegia on the same side, and not by crossed paralysis, as in the vast majority of cases. A third, and much more probable explanation of these apparent exceptions, is one which, to the best of my belief, has not yet been advanced. The loss of speech may have depended on disease of the pons Varolii, and I have already stated that in such cases the lesion may be either on the right or on the left, and have mentioned what I believe to be the explanation of this, viz., the decussation of the nerve-fibres in passing through the pons (conf. note, p. 101). Lastly, in those very rare cases in which the autopsy has revealed a sound left hemisphere and a diseased right one, we must content ourselves for the present with the explanation already given in a preceding page (p. 88).

“The left hemisphere, then, being specially concerned in speech, the next question is, are all parts of it equally so, or is this faculty located in some limited portion of it, as Broca would have us believe? It would be easy to bring forward abundant cases from our records showing that most extensive lesions may occur in the left hemisphere, and even in its anterior lobe, without the slightest impairment of speech. I will, however, only give one striking example of this.

“Frederic F. died in St. George's Hospital, February 15, 1867. His speech had been perfectly good up to the day of his death. The autopsy showed the following lesions in the head. There was a scalp-wound on the left frontal eminence. The bone here was fractured slightly, without any depression. There was pus between

the bone and dura mater. This latter was thickened and perforated, and there was a circumscribed abscess in the left anterior lobe, extending from the extreme front to the corpus striatum, and downward to the orbital plate. In front it came within half an inch of the external surface. The brain-substance round about was yellow, softened, with numerous red puncta. The corpus striatum and optic thalamus on the left side were softened, and the corpus striatum in great part broken down. There was much fluid in the ventricles, and softened fornix. Broca's region was carefully examined, as also the corresponding part of the right hemisphere, and was perfectly sound.'

"It would appear, then, that all parts of the left hemisphere are not concerned in the matter, nor all parts of the anterior lobe. What part, then, is? The eight cases of embolism of the left middle cerebral artery show that it is some part supplied with nutriment from that source. The rest of the cases harmonize with this conclusion. Such a part, with much besides, is the posterior part of the third frontal convolution; so that our hospital records are compatible with Broca's opinion. The accounts of the *post mortem* examination in the cases I have recorded, made by gentlemen who at the time were not conversant with Broca's theory, and who have therefore not taken pains to distinguish with precision the separate convolutions, do not allow us to go much farther than this. Still, cases v., vi., xvi., xvii., in which Broca's region was, if not exclusively, yet specially the seat of lesion, lend great probability to the accuracy of his conclusion. At any rate, these cases would seem to show that the organs of language are, if not in the exact position which he has assigned to them, in close proximity to it. Cases of aphasia are, however, by no means uncommon; and it can hardly be doubted that, when so many observers have their attention turned to the subject, pathological observation will soon give a certain answer to the question."

#### VII. *Reports of Cases of Nervous Disease—Delirium.*

This paper, by Dr. C. Handfield Jones, is founded on eight cases, in which delirium was the prominent symptom. Each is worthy of study. We must, however, refer our readers to the cases themselves, and, we apprehend, they will find free scope for differences of opinion as to their true nature, and the conclusions to be drawn from them.

#### IX. *On Loose Cartilages in the Knee-Joint.*

Mr. Brodhurst briefly records a case in this paper in which the internal semi-lunar cartilage had been displaced, and a portion of it broken off. He regards this as a frequent cause of loose cartilages in the knee-joint, though it is not mentioned in surgical writings.

#### X. *Infecting and Non-Infecting Chancres.*

This paper by Mr. Venning has especial reference to the means

of diagnosis between the two forms of chancre. The author states that during a period of four years there had been admitted into the hospital of the 1st Life Guards forty-nine cases of venereal disease. Of these nineteen were diagnosed and treated as infecting chancres, and thirty as non-infecting. He had inspected nearly all these latter lately, and only two presented any trace of secondary disease. One of these seems to have had both forms of chancre, the other had a suppurating chancre, and the glands of the groin did not at first assume what the author thinks the only really characteristic feature of the infecting disease, viz., amygdaloid enlargement. He thinks induration may exist without the sore being an infecting one, but he does not remember any case in which this condition of the glands did not exist.

XI. *On Naso-Pharyngeal Polypi.* By THOS. P. PICK, Curator of the Pathological Museum.

Mr. Pick's paper treats of tumours of a fibrous character growing generally from the basilar process of the occipital bone and body of the sphenoid, where they form the roof of the pharynx. They are continuous outgrowths from the thickened periosteum, and belong to the category of fibrous tumours, called by Cruveilhier *corps fibreux implantés*. Although generally growing from the base of the skull, they sometimes arise from the fibrous tissue in front of the bodies of the cervical vertebræ, and project into the nasal fossæ.

Mr. Pick quotes Nélaton as saying, "Individuals never live long with growths of this kind;" and he says there is always a prospect of speedy death either from hemorrhage or the impediment they offer to respiration or deglutition. They are not confined to the nose, but may make their way into the orbit, pterygoid fossa, and other cavities about the face. Sometimes these growths slough off, and thus a spontaneous cure is affected, but in general it is necessary to remove them by operation. Nélaton proposes to remove them through the mouth. Others remove the superior maxilla, or raise and replace it after excising the tumours, and some merely remove the nasal bones. Mr. Pick, in his very excellent paper, discusses the merits of these several methods, as well as of the ligature, torsion-forceps, and galvanic cautery, but for the details we must refer to the paper itself.

XII. *On Croup and Diphtheria.* By J. W. HAWARD.

The author argues that these are distinct diseases, and shows



good reasons for his belief. He advocates the early performance of tracheotomy, when the breathing becomes laborious, and he thinks it should be done even more early in diphtheria than in croup.

XIII. *The Significance of Skin Affections in the Classification of Disease.* By T. C. ALLBUTT, M.D.

Dr. Allbutt urges the necessity for a classification of diseases on a "natural" system, and indicates here some of the principles on which it should be formed.

XV. *Cases of Fever, with Remarks on their Origin.* By W. E. C. NOURSE.

The conclusions arrived at as to the causes of fever are as follows:—

1st. Blood-poisoning by malaria does not make fever by itself, for we often see it without any fever following; but it is malarious blood-poisoning, coincident with depression and faulty elimination, that originates fever of the typhus group.

2nd. Typhoid fevers appear to originate in—1st, Some personal debility, but not that of starvation; 2nd, blood-poisoning by malaria; 3rd, something injurious conveyed (often in water) into the intestinal mucous tract.

XV. *The Forms of Pneumonia.* By OCTAVIUS STURGES, M.D.

In framing the statistical table of the Medical Registrar's Report for 1865, Dr. Sturges was struck by the very slender bonds which held together, under a common name, affections of the most various kinds. This he found to apply especially to pneumonia, and he was led to try, by bringing together a large number of such cases, whether he could effect some natural arrangement of the whole into groups, each of which should comprise instances of disease more or less obviously allied to one another.

In this paper Dr. Sturges has tabulated all the cases of pneumonia in the records of the hospital, and shown how pathological conditions sufficiently similar to warrant the application of a common name to the series are associated with every variety of clinical phenomena. He has arranged the cases into six classes:—

I. Cases of hepatisation occurring in the course of lingering diseases, and ascribed to low or latent pneumonia.

II. Cases of hepatisation the result of blood-poisoning.

III. Hepatisation from obstruction.

IV. Simple pneumonia.

V. Hepatisation where death was ascribed wholly or mainly to low or latent pneumonia.

VI. Exceptional cases mostly resembling Class IV.

XVI. *On a Case of Death from Hemorrhage into the Pericardium, as a Result of Rupture of One of Three True and Circumscribed Aneurysms of the Coronary Artery of the Heart; with Observations on Aneurysm or Aneurysmal Dilatation as a Result of Embolism or Thrombosis.* By J. W. OGLE, M.D.

In the opening of this paper, Dr. Ogle refers to Mr. Tufnell's remarks (published in this Journal, May, 1853) on the formation of aneurysm from the detachment of "cauliflower excrescences," but when Dr. Ogle had his attention first directed to the subject he was not aware that Mr. Tufnell had preceded him. In addition to his own very interesting case Dr. Ogle gives an abstract of all the cases he has found recorded of aneurysm of the coronary arteries.

XVII. *Statistics of Strangulated Hernia. Some Facts in reference to Strangulated Hernia, founded on a Record of 200 Cases in the Book kept at St. George's Hospital.*

In this paper Mr. Holmes gives a very full analysis of the records of the hospital in reference to operations for hernia. In the previous volume he gave a similar report on amputations. We can only note a few of the leading facts. The paper should be most carefully studied.

The 200 cases included all the three common varieties of hernia femoral, inguinal, umbilical. The deaths in the whole were seventy, or rather more than one-third. In sixty-eight cases the hernia was inguinal, and four of the patients were females. Four of the operations were performed in infancy (under seven months), in one of which the hernia did not appear to be of the congenital form. Of the sixty-eight inguinal cases nineteen died, not much more than one-fourth, while of 126 femoral cases 47 died, more than one-third.

Of the 68 inguinal cases 30 were operated on within twelve hours, of whom 7 died, but of these 3 had received irreparable injury to the gut in the forcible attempts at taxis before the operation. In one case an artery in the mesentary had been wounded in the operation, and 3 died of peritonitis, in one of

whom the gut bore marks of the bruising it had got in the previous attempts to reduce it.

In the latter half of the first day of strangulation there were 13 cases operated on, with 4 deaths—1 from fatty heart, 1 from diffuse inflammation of scrotum, and 2 from peritonitis.

Of the remaining 25 cases, 9 were operated on in the second day, 6 on the third, 7 on fourth, 1 on fifth, and 1 on sixth; the date of the other has not been recorded. Of the 25 cases 8 died, of whom 2 were in a moribund state before the operation. Thus, Mr. Holmes says, our experience shows there is less risk in early operation than in any less decisive measures, and that if cases were gently handled in the efforts at taxis, and operated on early, when such gentle efforts failed, few of them would die.

Of umbilical hernia only 6 cases were operated on in the whole 13 years, and of these 4 proved fatal. Mr. Holmes attributes this high mortality to the advanced age of the patients, the probable affection of the viscera, the large quantity of omentum to be cut through or removed, and the unfavourable position of the opening for the escape of discharges.

Of the femoral hernia 126 cases were operated on, of whom 19 were males, and 107 females; 11 of the males died, but 3 from other causes; but even excluding these, the deaths and recoveries were equal, 8 of each.

The usual sex of the patient, and the smallness of the tumour, cause femoral hernia to be allowed to remain longer than inguinal after strangulation before operation; but when operated on early death is the rare exception. In 15 cases the strangulation had lasted less than twenty-four hours, of whom 1 died; 30 lasted one to two days, of whom 8 died; 20 lasted two days, and 11 died; 18 three days, and 8 died; 11 four days, and 5 died; 5 lasted five days, and 3 died; 5 were six days, and 2 died; 3 were seven days, and 2 died; 4 eight days, and 3 died; 2 were ten days, both of whom died. The duration was uncertain in 4 cases, 2 of whom died.

As to the contents, in 3 cases the sac was not opened; in 1 there is no note of the contents, and in 2 the sac was empty. Of the remaining 120 cases 7 were epiploceles, of whom 2 died; 70 were enteroceles, the intestine being gangrenous in 6, of whom 3 recovered, but with artificial anus. In 5 the intestine was ulcerated, and 4 died; in 17 it was inflamed, but only 5 died; and the intestine was in an unhealthy state in many others; but of the 70 enteroceles, only 23 died; and of 43 entero-epiploceles, 21 died.



Mr. Holmes believes the mortality of the hospital after herniotomy is below that of most others, and he attributes this to the fact, that if the strangulation will not yield to moderate taxis under chloroform, the operation is at once performed; and he states that, after operation, no purgatives are given, except on clear indications, no matter how long the constipation may have lasted.

*XVIII. Two Cases of Strangulated Inguinal Hernia, with Remarks.*

In this paper, also by Mr. Holmes, 3 cases of great interest are recorded. In the first the gut, which was irreducible, was injured by too protracted taxis. It gave way at the operation. The rent was sewn up, the bowel returned into the peritoneal cavity, and the patient recovered. In the second the bowel, though quite reducible, was allowed to remain unreduced three days; peritonitis was set up, and notwithstanding the reduction of the hernia, the patient died. In remarking on these cases Mr. Holmes is led to criticise the views put forward by Mr. Hutchinson in Vol. ii. of "London Hospital Reports." Mr. Hutchinson believes the main cause of peritonitis in such cases is the returning into the peritoneum an inflamed bowel, from which inflammation radiates over the general serous surfaces. Mr. Hutchinson argues that where the intestine is inflamed it should be left in the sac after the stricture has been divided; but Mr. Holmes tries to show, and, we think, conclusively, that Mr. Hutchinson's facts do not justify his conclusions, and that the right practice is as taught by Aston Key, to reduce the gut into the belly in all conditions short of actual gangrene.

*XIX. Case of Convulsions occurring after Delivery, with some Remarks suggested thereby.*

This case is recorded by Dr. Mackay, but, though interesting, does not present anything to require observation at present.

*XX. Instances of some of the Rarer Varieties of Morbid Growths, Swellings, &c., connected with the Organs contained within the Abdominal Cavity.*

In this paper Dr. J. W. Ogle details 40 cases, with their histories, and the *post mortem* appearances, and a continuation of the paper is promised.

The volume closes with a report of the medical, and another of the surgical cases admitted into the hospital during the year 1866-67.

## PART III.

### MEDICAL MISCELLANY.

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*Reports, Retrospects, and Scientific Intelligence.*

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#### PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.<sup>a</sup>

Dr. GORDON, President.

*Chronic Pleuritis with Effusion. Tuberculosis of the Lungs. Pulmonary Embolism and sudden death.* By DR. HAYDEN.—K. H., aged 24, clerk, pale, and of dark complexion, was admitted into the Mater Misericordiæ Hospital October 30th, 1867, suffering from dyspnea, and dry teasing cough. The finger-ends were clubbed; nares dilated; pulse quick; sleep broken; appetite bad. In the apex of the right lung the signs of cavity existed, and over the entire right front a loud friction-sound was audible, and fremitus was perceptible to the hand; the lower portion of this side was dull, and to the same extent respiration was not audible; nothing abnormal was discoverable on the left side. He stated that a few weeks previously he had been attacked with acute pain in the right side, having been suffering from cough when so attacked. Sedatives, with small doses of iodide of potassium, and counter irritation were employed; under this treatment the patient's condition had greatly improved, he had gained flesh, slept better for the last few days, and the friction sound had nearly ceased to be audible, and was replaced by natural but weak respiratory sound, when, on Saturday the 19th of November, he was informed that he might leave hospital on the following Monday. It would seem that, inspired with too much confidence by this announcement, he exposed himself incautiously in the corridor, and on the following day Dr. Hayden found him in bed; face flushed; respiration accelerated (36), and embarrassed; skin hot; pulse 132; he complained of pain in the right side, the lower half of which was comparatively dull, with respiration nearly inaudible. On November 21st the patient was attacked with diarrhea; pulse 150; face

<sup>a</sup> These reports are furnished by the Secretary to the Society.

congested, and respiration laboured. November 22.—Since last report there has been gradual improvement; pulse 108; respiration 24; dullness has diminished, and respiration is accompanied with a coarse crepitant râle. On the 28th there were signs of considerable effusion into the right pleura; the patient got out of bed and dressed; had a craving for food; and passed an indifferent night, constantly complaining of thirst. At 8 o'clock on the morning of the 29th, the Sister on duty brought him his breakfast, and on presenting it to him, observed that he struggled for breath and became livid in the face; she at once gave the alarm, and within a few minutes the patient was dead. *Autopsy.* The right pleura was remarkably thick, both in its parietal and visceral layer; on the lung it was several lines thick, and consisted of two layers readily distinguishable from one another, and manifestly the result of two distinct accessions of inflammation. The parietal pleura was attached to the anterior surface of the lung about two and a half inches below the apex, and thence upwards both layers were amalgamated and firmly attached to the lung, which, through them, adhered to the chest wall. The cone of the pleura thus pathologically formed, fell short of the apex of the lung by nearly three inches, and limited the ascent of the serous effusion, of which there were about two quarts, clear, and of an amber tint. The entire lung was compressed and solidified, with the exception of that portion which was adherent to the parietal pleura, viz., the superior portion, and this was extensively pervaded by tubercular deposition, and presented at the apex two small cavities about the size of the point of the finger. In the apex of the left lung were several 'nests' of minute grey tubercles, each surrounded by an areola of deeply congested lung substance, which contrasted strikingly with the surrounding surface of section; tubercular matter of a similar character was sparsely disseminated through the remaining portions of both lungs. The bronchial glands were solidified by deposition of cheesy tubercular matter. The heart was of normal size, somewhat fatty on the surface, and, examined microscopically, its tissue was found to be in an early stage of fatty transformation. Some partially decolorized fibrin was found in the right auricle, whence it extended into the right ventricle and into the pulmonary artery, in which there was a cylinder of yellow fibrin about one-eighth of an inch in diameter, bifurcated at the primary division of the vessel, and extending into the lungs through several sub-divisions; the lining membrane of the pulmonary artery was deeply injected, and of a pink-red colour; the valves and orifices of the heart were all normal. With reference to this case Dr. Hayden remarked that he felt some difficulty in determining the immediate cause of sudden death; it might have been failure of the heart, consequent upon the effort of the patient to sit up quickly in bed; of sudden death from this cause under similar circumstances—viz., where copious pleural effusion existed—he had



witnessed some examples, and such are familiar to all physicians of experience, and indicate the necessity for a guarded prognosis, and of great caution in regard to the movements of the patient in such cases. It may possibly have been in some degree connected with thrombosis of the pulmonary artery; but to the former view he was rather inclined, both by the history and actual condition of the patient, and the comparatively small size of the fibrinous cylinder found in the pulmonary artery.—*November 14, 1867.*

*Trichinosis.*—DR. R. M'DONNELL brought before the Society some specimens of muscle affected with trichinosis from a subject which had some days before been brought to the dissecting room of the Medical School at Dr. Steevens's Hospital. As such cases were comparatively rare in this country (this being the first case ever brought under the notice of this society), Dr. M'Donnell exhibited in microscopes on the table various preparations illustrative of the case.

The following was the meagre history of the patient which he had been able to make out:—

John Leahy, aged 44 years, had been admitted to the hospital of the South Dublin Union Workhouse, in June last. Previous to admission he stated that he had been reduced to a state of great debility and emaciation by an attack of low fever. He died ultimately of pulmonary phthisis.

The body was greatly wasted, and all the hair on the head, chest, and pubes had fallen off.

All the voluntary muscles of the body were filled with the minute white specks which microscopic examination showed to be the entozoon named by Professor Owen the *trichina spiralis*, in what is known as the encapsuled condition.

Dr. M'Donnell had calculated that in the biceps muscle alone there were about 6,900 of these minute worms.

About 35 years ago the attention of physicians had been first directed to small whitish bodies existing in the voluntary muscles. An English anatomist, Hilton (*Lond. Med. Gaz.*: 1833, p. 605), had first drawn attention to those bodies, but it was not until in 1835, when James Paget submitted them to Professor Owen for examination that their true character as an entozoon was discovered. Since then the life history of this minute worm has been worked out with extreme assiduity and success, for the most part by German observers. Zenker, of Dresden, has the merit of having first discovered the worm in the free state; this occurred in 1860, in a case of fatal trichinosis which he had an opportunity of examining. It appears that it is during this period, whilst they are free and not yet encapsuled in the muscles, that these creatures cause the symptoms recognized as trichinosis, which sometimes terminates

fatally. After they become encapsuled they may remain for years, causing little or no disturbance.

Dr. Mc'Donnell read the following curious history from Professor Virchow's pamphlet (*Die Lehre von den Trichinen*, Berlin, 1866, p. 49):—

“In February, 1863, Langenbeck in Berlin was operating upon a swelling in the neck, when he observed that the muscles laid bare were full of calcined trichinæ. The man, upon being asked whether he ever had a peculiar attack of illness, related that in the year 1845 a commission was employed in Jessan for the inspection of schools; the eight members of it breakfasted together at a merchant's house; one left, having partaken of only a glass of red wine, the other seven drank white wine and eat what was provided. These last, one of whom was the relator, took ill, and four died. Suspicion fell upon the meal and the host. A legal investigation was held upon the white wine, which had no result; but the host felt obliged to emigrate, he remained such an object of suspicion.”—*November 30, 1867.*

*Hypertrophy and Fatty Degeneration of the Heart—Mitral Regurgitant Murmur without Valvular Disease.*—DR. HAYDEN said that the specimen laid before the Society would be considered to present the more interest, because the details of the case had been already, during the man's lifetime, published in the *Medical Press* of Nov. 13th ultimo. The man was aged sixty, a gunsmith by trade. He had never been intemperate, and never had had rheumatism. He was admitted to hospital on the 9th of last October. Up to six months previously he enjoyed uninterrupted good health. He then for the first time observed his respiration to become quickened on walking up stairs, and suffered from palpitation. About a month subsequently he observed swelling of the feet and legs. When admitted to hospital there was very considerable œdema of the feet, legs, and thighs, a rather remarkable superficial venous engorgement of the dorsal surfaces of the feet, and of the lower part of the legs, and a slight jaundiced tint of the face and conjunctivæ. There was considerable effusion into the peritoneum—the liver was enlarged considerably, and extended nearly to the umbilicus. The man's pulse was 96, irregular, and intermittent. He occasionally sighed, and respiration became quickened occasionally, even as he lay in bed. Over the pericardium there was decided dulness from the right margin of the sternum to an inch and a half external to the left nipple. In this latter situation a distinct bellows murmur was heard, replacing the first sound of the heart. It was audible in the left axilla, and likewise at the inferior angle of the left scapula. At the apex of the heart the second sound was obscure, but still audible. Over mid-sternum a systolic murmur was likewise audible, less pronounced than over the apex of the heart. Here a murmur was also heard in place of the second sound,

a distinct diastolic murmur. There was visible pulsation of the radial, and of the carotid, but not of the temporal arteries. Urine passed in moderate quantity; of specific gravity 1015, acid, and with only a trace of albumen.

Up to the 19th October the man continued to improve under tonics and diuretics. Towards the end of October the scrotum and penis became swollen, an exceedingly unfavourable symptom in such a case. The penis was punctured, and on the following morning the flow of serum had been so great that it had filtered through the bed, on to the floor. The man derived great relief from the operation, which had to be subsequently repeated. He soon began to sink; had repeated attacks of dyspnea; blood was mixed with the sputa, and the lower part of the left side of the chest became dull on percussion.

On the 19th of November a blush was observed on the right elbow. On the 20th this had extended to the shoulder, and to the wrist; was attended with great tumefaction, and large vesicles had formed on the surface, which presented a lemon-yellowish tint. On the 21st the tumefaction and redness, now of a dark tint, had extended to the right side of the neck and chest. The entire of the right upper extremity was tense, and large bullæ had formed on the right elbow. The pulse was slow, only 72, while the heart beat at the rate of 156 in the minute, *i.e.*, more than double that of the radial artery. The man declared that he suffered no pain on pressure, showing that cutaneous sensibility was impaired. He died on the morning of the 23rd November, at 3 o'clock. On making a *post mortem* examination the right upper extremity was found in a state of incipient gangrene; the cuticle had peeled off from nearly the entire surface, and all the great serous cavities were full of serum—the pericardium, the two pleuræ, and the peritoneum. The right lung was found consolidated in its lower half, and this portion of the organ sank in water. The heart was greatly enlarged; it was fatty on the surface, and two “milk spots” of large size existed, one on the right ventricle, and the other on the left very near the apex. The right cavities were occupied by some discoloured fibrin, and dark coagulum. The right auriculo-ventricular orifice was so large as to admit the four fingers and thumb. The upper portion of the right ventricle was considerably dilated, and seemed to form a second chamber in the situation of the ventricular sinus; pulmonary artery dilated, but its valves were competent; left auricle and ventricle contained some dark clotted blood, and were greatly dilated; left ventricle was likewise considerably thickened; left auriculo-ventricular orifice normal; mitral valves slightly thickened, but otherwise healthy, and competent to close the orifice, so that water poured into the ventricle, whilst the aorta was compressed, did not flow back into the auricle; aorta dilated, atheromatous in patches, and of a deep scarlet tint throughout; aortic valves healthy, but inadequate to



close orifice, owing to dilatation of aorta; water poured into aorta flowed slowly into ventricle through a small aperture in the axis of the opening; scarlet tint of lining membrane of aorta extended into both carotids, right subclavian, axillary, and brachial arteries, and was everywhere not removable by washing; no embolus was found in any of the arteries of the right upper extremity, which were carefully examined with a view to determining this point. With one inch of aorta and of pulmonary artery attached, the heart weighed  $32\frac{1}{2}$  ounces; walls of left ventricle were  $\frac{9}{16}$  of an inch thick at apex,  $\frac{3}{4}$  of an inch at middle and at base; left ventricle, measured from root of left segment of mitral valve to apex, was  $4\frac{3}{4}$  inches long, and from septum to left wall it was  $2\frac{1}{2}$  inches wide, in collapsed state. Microscopically examined, with a power of 222 D, the fibres of the walls of left ventricle were found converted into strings of oil-dots, which, after treatment with strong acetic acid, were seen arranged in unbroken linear series; no trace of transverse striation was anywhere visible. Liver was enlarged, and contained much fat in form of oil globules, both in hepatic cells and interstices; it sank in water. Gall bladder empty; spleen of normal size, and apparently healthy.

The features in this case revealed by *post mortem* examination, which were of the greatest interest, were the following:—The absence of mitral valve disease; both segments of the valve were thickened, but not out of proportion to the hypertrophy of the walls of the left ventricle; they were competent to close the orifice, as proved by the water test. The aortic valves were incompetent in a slight degree; there was no aortic valve disease, and the slight incompetency observed was due to dilatation of the aorta. The inner surface of the aorta was atheromatous throughout, the atheroma being deposited in large patches, and in largest quantity at the root of the vessel, which was thereby rendered rough. The existence of aortitis, and arterial inflammation extending into the carotids and main artery of the right upper extremity, suggested the possibility of embolism, or arterial thrombosis, as a cause of the erysipelatous and gangrenous inflammation which so rapidly disorganized the right arm and shoulder; and, indeed, before the patient's death, the possibility of this, in connexion with assumed disease of the valves, occurred to his mind, but nothing of the kind was found after the most careful examination.

The chief interest of the case, however, had reference to the existence of hypertrophy of the heart, to the extent of nearly threefold development of the organ, without valvular disease or valvular inadequacy, save that which in a very slight degree existed at the aortic opening; and, still more, had it reference to the existence of an indubitable mitral reflux-murmur, which, in the absence of mitral valve-disease or inadequacy, must be attributed to yielding of the walls of the ventricle during systole.

The explanation of such an occurrence was to be found in the state of tissue-degeneration, of which the heart presented so good an example; the existence of dropsical effusion, hypertrophy, and of the other ordinary consequences of valvular disease of the heart, must be likewise attributed to the same cause. The existence of jaundice in cardiac dropsy, and connected with hepatic engorgement as its ostensible cause, Dr. Hayden was disposed to regard as evidence of fatty disease of the liver, and, inferentially, of the heart also.—*Dec. 7, 1867.*

*Cancerous Disease of Lungs.*—DR. JENNINGS detailed the history of a case of cancer of the lungs, of the variety termed “cephaloma” by Carswell, and “medullary sarcoma” by Laënnec.

The preparation, as also the cast of the chest which he exhibited, was obtained from a patient aged forty-two years, who had been admitted into hospital on the 28th August, 1867. At that time his complexion, which was naturally florid, had assumed a somewhat sallow tinge; his eyes were bright, his features pinched, and expressive of anxiety and distress, and his general appearance emaciated; but in other respects he did not present any marked appearance of malignant cachexia. He stated that about the close of the past year, up to which time he had enjoyed excellent and uninterrupted health, and had followed the laborious trade of a stone-cutter, he gradually began to be sensible of shortness of breathing, which exertion soon increased to a sensation of suffocation, and that cough shortly afterwards set in, accompanied by slight expectoration. About three months from the commencement of his illness he was suddenly attacked in the evening by pain at the right side of the sternum, which continued very intense until the following morning, and then subsiding was never experienced afterwards. Four or five weeks previous to his admission a general soreness was felt over the entire right side, which continued permanent, but not sufficiently severe to produce much distress.

These symptoms, with the addition of stridulous respiration, which had first attracted his notice about three weeks previously, constituted the summary of his history as detailed by himself.

The scantiness of this account, however, was fully counterbalanced by the existence of physical signs of an unusual and alarming nature. Percussion disclosed extreme dulness over the entire right side of the chest, in front and behind, vocal fremitus and resonance being also very distinct, especially above and in front under the clavicle, and in the scapular region posteriorly, the opposite side being everywhere abnormally resonant, even over the *præcordium*.

On auscultation no sound could be detected in the right side except limited coarse tubular breathing, superiorly and posteriorly in the scapular region, between that bone and the spine, while over the left side respiration was intensely puerile.

The action of the heart in the precordial region was tranquil, though faint and distant, while over the entire right chest its double sound was much more distinctly audible.

The pulse was weak and equal at both wrists.

During respiration the right side was seen to be perfectly motionless, while the action of the left was excessively heaving and laboured, and the intercostal sulci deepened to an unusual extent during expiration. Complete obliteration of the intercostal spaces, and marked increase of size, were observed on the right side, which was found to measure, on the level of the nipple, 19 inches, while the opposite was barely  $17\frac{1}{2}$  in extent.

Under the right clavicle was seen a semi-globular tumour (which had first appeared about the middle of the month of May) about the size of half an orange, its base extending from the margin of the second rib to the lower border of the great pectoral muscle, bounded towards the mesial line by the edge of the sternum, and sloping from its apex towards the axilla. To the touch this was tense and elastic, and its surface traversed by several enlarged and tortuous veins.

About a fortnight after his admission an enlarged gland was observed above his right clavicle; this enlarged very rapidly, and from this time until his death, which occurred on the 5th Oct., his general sufferings, emaciation, and dyspnea, daily increased, the general surface of his body being constantly bathed in perspiration. While under observation his cough was short and teasing, and his expectoration scanty in quantity, and in character thin, clear, and frothy. He never suffered from hemoptysis.

*Post mortem*.—*Chest*.—On raising the anterior thoracic wall, which was effected with the greatest difficulty in consequence of its intimate adhesion to the subjacent disease, the anterior mediastinum, as also the antero-superior surface of the right lung were found occupied by a mass of white coloured, inodorous, cheesy deposit, which, tough and firm to the touch in other parts, had to the right of this bone softened to the consistence of semi-fluid lard, and having here absorbed the intercostal muscles between the first, second, and third ribs, had formed the tumour visible during life.

Both layers of the pleura were identified together, and adherent both to the thorax and diaphragm so intimately, that in removing the lung its substance was unavoidably torn in several places. Thus united, these layers were further extremely thickened, especially inferiorly, where their depth was found to vary from half an inch to one and a-half inches.

The substance of the right lung was universally and thickly studded with minute miliary granules; its colour was dark-red from congestion, non-crepitant, and sank rapidly in water; it was also traversed by whitish fibrous bands.



The left lung was greatly enlarged in volume; its anterior margin overlapping and concealing the pericardium, and thus accounting for the faintness of the heart's action. It likewise was universally the seat of similar cancerous deposit. It was not, however, congested, and floated in water. Its pleura was not thickened nor adherent, save in one spot under the left mamma to the extent of about a shilling.

The heart did not attract notice, further than that it was paler in colour than usual, and somewhat flabby. The right auricle was obviously flattened, and all the chambers contained less blood than usual.

The posterior mediastinum was filled with morbid deposit and contaminated glands in various stages of disease, some whitish in colour and of cheesy consistence, others dark-blue, and so hard as to turn the edge of the knife. Several of these latter intimately adhered to and compressed the right bronchus, thus producing the stridulous respiration heard during life; the "stridor from below," as this sound has been termed by Dr. Stokes.

*Abdomen.*—The liver was natural in size, but contained several cancerous tubercles, some as large in outline as a half crown, but none presenting the depressed centre and stellated lines described by Farre.

The lymphatic and mesenteric glands, as also the pancreas, were extensively implicated, and the spleen likewise contained two or three malignant nodules.

The lesser curvature of the stomach was occupied by a large mass of indurated glands, but its coats were completely free from disease.

The kidneys were enlarged and congested, but not otherwise diseased.

Dr. Jennings observed that the great obscurity connected as well with the subjective as the objective evidences of malignant affections of the lung, especially when the disease presented itself in the form of simple transformation of tissue, and without the development of any intra-thoracic tumour, producing obstruction or displacement, had long been universally recognized, and that the difficulty of forming a positive diagnosis in such cases, when the judgment was unaided by the suspected or unequivocal presence of cancer in other situations, was, as had been observed by many authors, frequently extreme.

In the present instance, notwithstanding the presence of the external tumour and the manifest bronchial compression, the precise nature of the case was by no means as clear as might be imagined; and the latency of all evidence of engagement of the abdominal organs was a striking and most remarkable fact. It might, perhaps, seem almost inexplicable that the existence of such widely spread morbid action in this situation, should not have been detected, and thus have aided in accounting for

whatever seemed unusual or anomalous in the physical condition of the chest. Yet never at any period during the progress of this most remarkable case was the attention even of the patient himself directed to his abdomen, where malignant disease was generally so clearly expressed as to remove all doubt or hesitation as to its real character; and though it was most strange, yet it was no less true, that this patient had never suffered from enlargement, pain, or even tenderness of his abdomen, nor yet from dysphagia, nor jaundice.

Of the physical signs observed, the most prominent of those which most materially aided in establishing the diagnosis, were, the extreme dulness of the side, and the remarkable diffusion of the heart's sounds. That this dulness did not result from empyema was proved by its not transgressing the median line, by the absence of cardiac luxation, and by the presence of vocal resonance and fremitus, while the history of the case, and the want of many of the most ordinary symptoms of "tuberculosis," diverted suspicion from this disease. That the tumour was not aneurismal in its character was at once evident from the absence of the usual acoustic and tactile signs of that affection, as it possessed neither expanding pulsation, sound, nor murmur.

This kind of negative deduction, strengthened, moreover, by the unusual enlargement of the side, which proved that it could not be an instance of chronic pneumonic solidification, and the compression to which the bronchus was evidently subjected, dissipated the difficulties which at first sight presented themselves.

Dr. Jennings expressed his sense of obligation to Dr. Purser, who had conducted the *post mortem* examination, and had favoured him with the following microscopic observations:—

*In right lung.*—The cancerous nodules developed in the trebecular tissue consisted of fibrous stroma, enclosing spaces in which large epithelioid cells lay in groups.

The air vessels were much compressed, and in some cases were filled by exudation either amorphous or cellular, the former of a brownish colour, and apparently consisting of disintegrated blood.

The granulations in the left lung were similar in position and anatomical structure to those in the right. The air vessels on this side were in general greatly dilated.

The right thickened pleura consisted for the most part of firm fibrous tissue, with small cells lying singly through it, but in certain spots these had increased in size and number, and lay in groups.

The cells in these spots were smaller than those in the pulmonary granules.

The tissue of the liver in general seemed healthy. The nodules in it consisted of fibrous stroma enclosing spaces in which were grouped cells similar to those in the pulmonary nodules. The origin of this

tissue, from the connective substance of the liver, could be clearly seen at the margins of the nodules. In the cheesy lymphatic glands the glandular tissue was completely lost. They consisted of cancerous structure similar to that in the lungs, except that the cells were somewhat swollen.—*Dec. 14, 1867.*

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## PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.<sup>a</sup>

### THIRTIETH ANNUAL SESSION.

DR. HARDY, President.

*Vesicular Mole.*—DR. C. F. MOORE read a case of vesicular mole or hydatid degeneration of the chorion. J. R., a laundress living with her husband, aged about fifty, somewhat anxious-looking; ten children; never miscarried; eldest now twenty-nine years old; last child born ten years ago; eight now living; regular menstruation ceased about two years ago, but she was ill every seven or eight weeks since, each alternate time being severely affected.

The discharge was sometimes preceded by a watery fluid. Between 15th and the end of August last she was very ill. Her next illness was in second week of November, and from that date until 3rd January she had continual bloody discharges, dark at first, but of a bright colour latterly. On that day the hydatiginous masses came away, being attended with considerable loss of red blood and great pain in the back.

She had in the preceding two months frequent bilious vomiting, giddiness, and debility.

When I obtained the specimen, eighteen hours after its discharge, it was, as has been well described by Dr. Churchill, of a beautiful pink colour, generally with some vesicles almost colourless, the vesicles being pyriform, ovoid or round, and varying from the size of a pin's head, or smaller, to that of a grape. The hydatids were in two masses, and so fragile I have brought only the smaller portion, which has lost its beautiful tints by keeping; the larger is the size of a child's head. It is unnecessary in this Society to speak of the great difference between these moles and the true hydatid echinococci which are said to have entered the uterus, as is supposed from the liver and abdomen in one case, and to have escaped from the vagina, in a recent case recorded by Dr. Hicks. My brother, Dr. W. D. Moore, ascertained that the urine was not albuminous in J. R.'s case.

The age of the patient J. R., fifty years, induced me to bring the case under the notice of the Obstetrical Society.

<sup>a</sup> These Reports are supplied by Dr. Geo. H. Kidd, Secretary to the Society.



The sanguineous discharges described by J. R. as taking place at intervals of six or eight weeks during the two years subsequent to the cessation of regular menstruation, were at times of an offensive odour.

As she has always lived with her husband since the time of her marriage, the case of J. R. tends only to corroborate the statement of those who regard the hydatid form of mole as a result of conception. At the same time it is well to bear in mind that in this case it seems probable that the conception, which produced this degenerate result, occurred more than two years before the expulsion of the hydatiginous mass.

The patient did not regard herself as being pregnant, although she felt some enlargement of the abdomen. She remarked upon the occurrence of the occasional discharge of watery fluid, generally preceding the attacks of hemorrhage, which Sir C. M. Clarke has attributed to the bursting of a hydatid. It is not my intention at all to enter upon a consideration of the question whether hydatid moles ever result without conception having preceded their formation, or the other important medico-legal point—namely, the length of time that may elapse between conception and the expulsion of the hydatid mole.—*February 8, 1868.*

*On Rigid Perineum.* By DR. GUINNESS BEATTY.

It will be in the memory of many members present that on the 12th of January, 1867, a paper on "Rigid Perineum and an Operation for its Relief," was read before this Society by Dr. Beatty. A case similar to that related by him (and I believe the only one on the records of the Rotundo Lying-in Hospital), having lately occurred in that institution, I wish to bring it under the notice of the Obstetrical Society.

On the 18th of last month (February) I was requested to hurry to the labour ward, when I found Ann Farrell, aged thirty, of middle height, but exceedingly thin and emaciated, lying on the couch in labour of her first child. Dr. Richardson, who was on duty, told me she had been in the second stage since half-past one o'clock (it was then just three o'clock p.m.)

The head was well down on the perineum, and during the pains a hairy scalp was protruded through an unusually small vulva. The perineum was, and had for some time been, greatly distended, and measured from the anus to the fourchette nearly four and a-half inches—the longest I had ever seen.

At first sight it appeared as if the next pain would do its duty and expel the head, or that the slightest help with the hand would drive it out; but, when the pain was over, on examination with the finger I found a flat unyielding band, formed by the sphincter or constrictor vagina muscle, and over which the pains appeared to have no influence.

I lost no time in communicating with the master, Dr. Denham (who had never seen a similar case). He agreed with me that this one appeared suitable for the operation my uncle had proposed and practised. Accordingly, following his plans, I, with an ordinary pair of scissors, divided, longitudinally, one inch of the soft parts, in the median line. After two or three pains had come and gone, and the head was not expelled, I further divided another quarter of an inch. The head was born the very next pain, and without any additional laceration. The child was a male, and of good size; and I may here mention that, on after inspection, the patient had a wonderfully good perineum left; that for three or four days poultices were applied, and afterwards black wash was ordered as a dressing; and that she left the hospital perfectly well on the 11th inst.

The simple operation necessary (in such cases) to avoid inevitable laceration would, I feel sure, have presented itself to any one's mind; but, from the fact of its not being an usual operation, some, especially young practitioners, would have felt diffident in performing it. However, having carefully studied my uncle's paper, I felt here was an opportunity for practising what he had advised. For in my case I feel sure that had nature been left to herself the unyielding band would have stood its ground; the child would undoubtedly have been expelled between the fourchette and anus, and the consequent rent would have been most extensive—probably into both rectum and vagina. From the favourable termination of this case I shall always feel fully justified in both recommending and practising the operation in similar cases, the ordinary means having been first fully tried.—*March 14, 1868.*

*On Anomalies in the Mechanism of Parturition.* By DR. HALAHAN.

Some six years since I had the honour of making a few remarks to this Society upon the mechanism of labour, and then stated that I considered the description given by Naegelé to be the accurate and only correct one; and I further maintained that although the head enters the brim of the pelvis in one of the four positions described by him, yet at the commencement of labour, when the os uteri is barely beginning its dilatation, the anterior fontanelle is always directed towards either acetabulum—that is to say, presenting in the third or fourth positions of Naegelé, that the fourth changes at the beginning of labour into the first, and that the third does not change into the second until the head has reached the floor of the pelvis. This I believe to be the general rule, any other being the exception. I have now no reason to alter my opinion; although it has so far received no confirmation from writers since then, yet it has indirectly from Naegelé himself, which I was not aware of until Dr. Leishman, of Glasgow, wrote his book on the mechanism of

parturition, as, unfortunately, I am not a German scholar, and had read but one translation of that great author, that Dr. Rigby published in 1829. Since then I have read three others and find some difference in each; however, Dr. Leishman asserts that "Naegelé considered the first and third cranial positions to be the ordinary forms of vertex presentation, the second to be a mere phase in the progress of the third, and *the fourth to be a rare variety of the early stage of the first.*" By this it would seem Naegelé sometimes considered the fourth position as nothing more than the early stage of the first (what seems strange to me is why he did not always consider it so).

Notwithstanding though I believe the third and fourth German positions usually take the course so accurately described by Naegelé, yet I have found it sometimes so happens that they take a most extraordinary one; these I have named anomalies, which I wish to bring before your notice, as I believe it has not been written upon by modern authors, although I think it can be fairly inferred from some of the older authorities that they at least observed it.

The anomalies I allude to are where the head enters the brim of the pelvis in the third position changing to the first, and where the head enters the brim of the pelvis on the fourth position changing to the second; thus, if you examine and find the head in the third position, with the pains strong, after some time the anterior fontanelle, which has been struggling to gain the left sacro-iliac synchondrosis, sweeps past it and takes up its position opposite the right sacro-iliac synchondrosis—that is, the head is now in the first position, in which position it is expelled. The face, instead of turning up to the right thigh of the mother, turns towards the left, and external rotation takes place, precisely as if the head had been expelled in the second position.

Examining in these cases for the fetal heart you will find, at an early period of the labour, it most distinctly heard upon the right side, whereas later in the labour it is most distinctly heard on the left; also the head swelling will be found on the front part of the left parietal bone.

I am sure, as far as external rotation is concerned, that many have observed it occasionally to follow the course I have now described. At the same time I am far from saying that upon all these occasions the head has originally entered the brim of the pelvis in the third position.

I need not detail the mode in which the fourth position changes to the second, as it takes the converse course of the third, external rotation taking place as if it had been expelled in the first position; the fetal heart changing from left to right, and the head swelling, occupying the front part of the right parietal bone.

I have accurately observed the above changes take place three times in cases where the head entered the pelvis in the third position, and once where it entered in the fourth.—*March 14, 1868.*



*Cephalotripsy.*—DR. J. A. BYRNE said that this operation having been so rarely performed in this country, and it being one as to whose merits there was some difference of opinion, he was induced to give the history of a case in which he, assisted by his friend Dr. Kidd, operated very lately, and thereby had an opportunity of testing the efficacy of the instrument.

On November 24, at 11 a.m., I was requested to visit Mrs. R., the wife of a cabman residing in the neighbourhood. She had been in labour twenty-seven hours, and the liquor amnii had been coming away since the commencement of it. She was suffering very much, and had not slept. On making an examination I found that the head was very high up, the os uteri rigid, and not larger than a shilling.

She did not appear during the whole of this time to have been managed in the most scientific manner; the room was close and stifling, and she was made to conduct herself as if in the second stage of labour, having been kept in bed the entire time, and desired to bear down; this I ascertained from her attendant, Mr. Burke, who had been some time with her, and who could not prevail on her to follow his advice.

This, I need scarcely say, had not rendered her condition the most suitable for a difficult labour, as it turned out.

She was a woman of hard features, of rather stunted form, and advanced in life being about forty years of age; her fingers presented in a well marked manner the coarse clubbed appearance indicative of hard country life to which she had been accustomed before marriage—a circumstance to which importance is attached by some authors, as being significative of narrowing or abnormality of the pelvis.

I ordered her to have a hip bath, which was to be followed up in an hour by an anodyne enema; that she should be kept cool, and that when she had obtained some rest she should get up and walk about for a short time, and have beef-tea.

5 p.m.—I visited her; she had obtained some rest; she had passed water; the os uteri had dilated considerably; she had been very sick. I ordered her another hip bath, to be given at 6 p.m.

9 p.m.—The os uteri had dilated considerably. There was a large scalp tumour; however, the head had entered but barely into the pelvic brim; the fetal heart was audible. She felt refreshed by the bath, but had slept only a little. She appeared, however, to be gradually sinking into that exhausted condition which is so strikingly characteristic of this kind of labour. Her pulse was above 100, very weak; her tongue dry; her lips and teeth covered with sordes; the pains were constant but of little use; the vaginal discharge had been for some time assuming the pea soup colour and consistence, and the vagina itself felt hot, and was tender to the touch; and it was evident that the time was approaching

for aid to be given, more particularly as at this examination the sounds of the fetal heart were becoming weaker.

I, along with Mr. Burke, prescribed a dose of ergot, to be given at 10 p.m.; to have some wine and beef-tea.

11 p.m.—She was now more than forty hours in labour; and matters being much about the same as at last visit, I, at first having put her under the influence of chloroform, assisted by him, proceeded to apply the forceps.

On examining her I found that although the cranial vault and scalp tumour had come down, yet in the true sense the head was above the brim, the os was fully dilated, and the promontory was very distinct; and it was evident that the antero posterior diameter was under three inches; the pelvis, moreover, seemed contracted in its lower outlet.

It appeared a very unpromising case for the application of the forceps. However I applied them when she was fully anesthetized; the application was difficult, and when applied I made all the traction I could compatible with safety, but with no result; the head did not make any descent, and matters remained as before.

12:30 p.m.—Having endeavoured unsuccessfully to deliver her with the forceps, and feeling satisfied that it would be impossible, I left her in charge of Mr. Burke and went for my friend Dr. Kidd, who kindly accompanied me on the instant. On his arrival he examined her most carefully, and applying his own forceps he made attempts to extract the head, but he failed to make any impression on it, and he was reluctantly compelled to withdraw the instrument.

I need scarcely say that the condition of the woman by this time was very bad, as those know who have seen such unsuccessful attempts made. She was in a state of the most complete exhaustion, and we were for some time afraid that she would not rally; however, by the exhibition of stimulants she improved after a short time, and when she had rallied we in consultation determined to apply the cephalotribe.

Assisted by Dr. Kidd and Mr. Burke, I perforated the head and gave exit to its contents partly. I then introduced the blades of the cephalotribe and crushed the cranium and base. This I repeated. The effect of the crushings was manifest by the more rapid evacuation of the cranial contents.

In order to see Dr. Kidd, who had such experience of the instrument, use it I now gave my place to him; he undid the blades and reintroduced them, and applying them to a fresh point made pressure; then used traction. The head began to descend, and the labour was speedily accomplished, without any laceration of perineum or vagina, and more easily than I had ever seen in cases where the crotchet was used for narrowing of the pelvis.

There was some smart hemorrhage, which yielded, and the woman

recovered quickly; never required the catheter to be passed and was quite well in a few days.

The child was a fully developed male.

In introducing the blades of the instrument both Dr. Kidd and myself could more easily form an opinion as to the amount of narrowing; the antero posterior diameter appeared scarcely  $2\frac{1}{2}$  inches, and was decidedly under 3.

A plaster cast with the blades applied just as they had been during the operation, was exhibited, as well also as Dr. Kidd's cephalotribe, and Sir James Simpson's.

The head itself was also shown in the same condition as after its extraction.

On looking at the head we observe how powerfully compressed it is between the blades of the instrument; the base of the skull is smashed posteriorly and at the sides, and crushed, and in this way the face and head are, as it were, rolled together in one mass.

In this way the mass which had to pass through the diminished pelvis is considerably lessened, and it could have been reduced to a still smaller compass had it been necessary, as by a few more crushings it could have been broken into very small fragments. It was not necessary, however, in this case, as two crushings were quite sufficient; but had the deformity been greater, with the instrument improved by Dr. Kidd, the head could have been extracted.

This instrument possesses great power both as a tractor and compressor—the last effect can be easily imagined when we see that the breadth of the blades when closed is only one inch, but the tractile power is immense, and in my mind infinitely superior to that enjoyed by the crotchet. I do not think that, in fact, any comparison can be instituted between them.

Dr. Kidd, to whom we are indebted for the introduction and first employment of this instrument in this country in obstetrical practice, has directed the attention of the profession here and elsewhere to its great value; and he has tried it in so many cases, and has so improved the instrument, that I shall not enter into any description of it. The cases in which it has been used were all cases of deformity of the pelvis, varying in amount, but all cases in which delivery by forceps was impossible. Dr. Kidd has adduced such strong reasons in support of using the instrument, which he has improved upon, and which may be said to differ from Sir J. Simpson's and Dr. Buxton Hick's, in its not possessing the pelvic curve, and being somewhat longer; that I, as far as my experience goes from the present case, am inclined to agree with him and prefer the straight instrument to any other.

1. Dr. Kidd says that the first advantage is that it permits of the head being rotated in a smaller space than with a curve blade.



2. It is easier to guide a straight instrument than a curved one.
3. It holds the head more securely.
4. In making extraction the handle of the straight instrument indicates the direction in which traction should be made.

Sir J. Simpson says that the great advantage of the curved instrument is that it does not slip when applied, as a straight one would; as one of the great difficulties is that, that after fixing the head it slips backwards.

My opinion is that this instrument of Dr. Kidd's fulfils every indication, and that although we might be able to use either Sir J. Simpson's or Dr. Hick's in the majority of cases, yet that his is an instrument calculated for almost any case where the deformity would be of sufficient extent to call for this operation.

Since the introduction of the cephalotribe into the practice of midwifery in this city, Dr. Kidd has brought before the notice of the profession four cases, and Dr. Ringland two cases, in which the operation was performed—in all of them pelvic disproportion of a greater or less extent prevailed, but of an extent to prevent a living child passing, or of extraction by the forceps.

The cases have been detailed here and elsewhere, and the medical public are familiar with the particulars of them, which have been published. I am not aware whether the operation has been tried by other persons in this city, or whether any cases have occurred in the Lying-in Hospital, which generally receives so many bad cases, calling for instrumental assistance; but I am happy to have it in my power to add another case to the as yet comparatively few which in this city have been given to the medical public, and again to give my small praise to an instrument which I think, by its greater power and freedom from danger to the mother, and its greater rapidity in accomplishing delivery in those cases where we must diminish the fetal head, has a marked and manifest superiority over the crotchet, and will, I think, in most cases, eventually supersede it.

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## TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY.

PROFESSOR SEATON REID, President.

*Case of Locomotor Ataxy.*—DR. HENRY BROWN read the following case:—

Mr. M. J——, aged twenty-eight, single, well-made, and about six feet in height, consulted me in August last. After a very careful examination, I considered him labouring under *locomotor ataxy*, or Duchenne's disease; but, as I had never seen a case before, I thought it advisable to

consult some of my medical friends, and he was seen by Dr. W. MacCormac and Professor Cuming, both of whom considered the case one of locomotor ataxy.

The symptoms first began about ten years ago ; but for the last four years they have greatly increased, during which time he has been under treatment (at one time or another) of various kinds, without receiving benefit.

His attention was directed to his feet at a very early stage of the affection, and he found that in walking, a constant watch was absolutely necessary to enable him to progress with any degree of satisfaction. The habit of walking with his head in a downward direction he could not account for ; but he was certain that up till his eighteenth year he had not noticed anything peculiar in his gait, and was not in the habit of "hanging his head." At present, when walking, he resembles a person under the influence of liquor, throwing his feet out without any precision, and they fall heavily upon the ground. His feet, even to himself, seem to fall "*all of a piece*," and when they come in contact with the ground a sensation is conveyed to him, so that he imagines it possesses no firmness, and he is obliged to use a staff to prevent himself from falling. Under no circumstances could he walk in a straight line.

In damp weather every bone seems dislocated, and the muscles of the legs are much more beyond control than in dry bracing weather. He dreads this relaxation much, for it is with the utmost difficulty he can at all progress. The limbs seem to be well nourished. No diminution in the sensibility of the cutaneous surface can be observed. The points of compasses or other sharp-pointed instrument, can be perceived with exactness ; and I took care that the eyes were obscured during this examination. He can flex and extend the legs with great force. When the leg was extended, neither Professor Cuming nor I could flex it. When seated and requested to raise a leg into the horizontal position, he can do so without any assistance ; but his eyes are steadily fixed upon the limb during this movement. He cannot stand upon one leg, nor can he stand when his feet are close together, without the aid of a staff, and then only with difficulty. He cannot bring the feet into close approximation without considerable shuffling ; and, if he be requested to close the eyes when standing with his feet together, he is seized with a sensation of dread lest he fall, and he opens the eyes after momentary closure with delight at finding himself still standing upon *terra firma*.

The upper extremities are well nourished. For some time he has been very much troubled with "*a burning*" of the hands, which causes great annoyance ; and, as he is a book-keeper, he requires to bathe the hands frequently in cold water to ease this painful sensation, which is always attended with profuse sweating. He can write with his wonted facility, except in the morning, when the right hand is rather tremulous, but this

usually disappears in half an hour or an hour after commencing business. There is no paralysis of the upper extremity.

In order to test his strength I got him to lift a bale of tow—weighing one hundred and a quarter—and this he could have carried upon his back, but for a tendency to fall which he experienced, owing to the want of control over his lower members. He told me he could lift even more than the above weight, and that his strength in this respect was as good as could be.

In the lumbar region an acute burning pain is sometimes felt, which often continues for an indefinite time, and a painful spot can frequently be pointed out, but not always. Percussion, however, causes not the slightest pain; and the spinous processes may be pressed upon without eliciting pain. When pressing the lumbar spines on one occasion, however, pain was felt, and he expressed it—as if burned with a heated sharp-pointed iron.

This is the region of greatest weakness, and he is obliged to wear a bandage and stays to afford support, else he could not walk. To use his own words—“without the stays he would fall in two.”

Over the frontal region a dull heavy pain is almost a constant companion, and, at times, confusion of ideas accompanies it. Noise in the head troubles him very much, and is greatest after rising in the morning. This noise he compares to water heard falling from a considerable distance. In order to remove a feeling of stupor he is obliged to wash his face in the coldest water obtainable, every morning, at least three or four times, and this process is repeated several times during the course of the day.

When exposed, during the transaction of business, to the open air, and then confined to office work, the stupor becomes most unpleasant, and ablution is the only relief he can obtain. There is constant singing in the ears, and the sense of hearing has become blunted of late. The pupils contract perfectly upon the stimulus of light; they are larger than usual, but there is no impairment of vision, nor does he complain of visionary spectra.

The senses of taste and smell are unaffected.

When spoken to in a loud or commanding manner he loses all control; and he has frequently been nearly run over on the street from his inability to move when shouted at. At night, it is with great difficulty he can cross from one side of the street to the other, and his gait is much more unsteady, for an obvious reason. His digestion is excellent, and the bowels are never confined. There is no paralysis of the rectum. The bladder possesses its tonicity, and the urine is voided with ease, but he requires to wait a little before the process of emptying commences. This process requires no straining, however. Sleep is disturbed by frightful dreams, and he invariably awakes at three o'clock in the morning. Seminal emissions occur at least three or four times in the week,



and exhaustion is very great after these. There is no incontinence of urine at night. I have inquired whether he has had any of the shooting pains which "come on and go off with the rapidity of lightning, or of the electric spark," and find at no time have they been observed. I have observed his articulation, and consider it slightly *muffled* of late, but it is distinct. He confesses it is not so good as it formerly was.

He has never been guilty of excess of any kind.

His father is alive, and has attained the age of sixty-seven. His mother died a short time ago at the age of sixty-two. For the last two months of her life she was unconscious, or nearly so; and is supposed to have died of some heart affection. 'This is all the information I can obtain in reference to her death. She was very healthy previously to an attack of rheumatism, from which she never got quite well. His brother, who is a few years younger than the patient, is a healthy young man.

As regards treatment, various remedies have been employed from time to time, by others and by myself, without any appreciable benefit. He has taken strychnia, phosphorus, iron in various forms, iodide of potassium, and tonics in every shape and form, without any good result. Liniment of iodine was applied to his back previously to consulting me, electricity, and no end of other means proving quite impotent to remove, or even slightly benefit his condition. His affection was considered to be paralytic by some who saw him early, and others thought it was inflammation of the spinal cord or its membranes.

More benefit has been obtained from cod liver oil, and a good wholesome diet, with a liberal use of sweet milk, than from all other means combined. I advised nightly ablutions of the genitals with cold water, and great good has resulted from this practice.

Under the use of some lauded remedies the patient lost ground; iodide of potassium increased the debility, although he got only a grain and a half twice daily. An occasional bottle of porter, with the generous diet, have caused an increase in his weight of several pounds within a very short time.

At present (19th March, 1868,) the condition of the patient is much the same as when seen by the members of the Ulster Medical Society in October. He is getting a pair of spring stays made, and he hopes to be able to walk with greater ease. The generous diet is still continued, and the patient considers his condition "at a stand-still." I can observe no change myself; but he is decidedly stouter than when I first examined him.—*October 16, 1867.*

DR. CUMING exhibited the supra-renal capsules of a patient who had been in hospital under the care of Dr. Drennan. The capsules were greatly enlarged, and contained large cheesy masses, having the characters of tubercle. The lymphatic glands in the neighbourhood were

also tuberculous. There was no discolouration of the skin or of the mucous membranes. The patient had suffered principally from abdominal pain and gastric irritability.

DR. CUMING read *Notes of Case of Empyema*, which is published in the *Quarterly Journal* for February, 1868.—*January 3, 1868.*

*Case of Popliteal Aneurism.* DR. WILLIAM MACCORMAC read the following notes.

Daniel Dobbin, a man twenty-seven years of age, pale and thin, of a lymphatic temperament and peevish disposition, was admitted to my wards in the General Hospital, on Sept. 25, 1867. His occupation is to drive a spring-cart, and he states that four months ago he fell off the cart, striking the step in his descent. He felt his leg very painful for some time, but the limb afterwards perfectly recovered.

About six or seven weeks before coming to hospital he noticed a feeling of stiffness in the right ham, followed by the appearance of a small tumour as large as a bean, which rapidly increased in size.

On admission we found an aneurism filling up the right popliteal space, and fully as large as a medium-sized orange. There was a bruit, and strong distensile pulsation, which could be readily controlled by pressure upon the artery in the groin, and whilst the pressure was kept up the sac could be emptied almost completely. The leg was œdematous, the pulse 60, and rather weak, the heart sounds are natural, and the tongue is quite clean.

The treatment at first consisted in gradual compression, and then an attempt at complete, which only proved partially successful.

Carte's compressor was first employed, but the restlessness and fretful disposition of the patient continually disarranged the apparatus, and I found Signoroni's tourniquet more efficient and more manageable, as well as more readily borne by the patient.

On the 7th October, twelve days after admission, compression having been maintained more or less perfectly for about ten hours each day, it is reported that, although perhaps somewhat firmer and smaller, the tumour is but very slightly altered since admission, and for the last five days scarcely any change has taken place. I therefore determined to try the method of complete compression, and effect, if possible, a rapid cure. I ascertained that a pressure of four pounds readily controlled the femoral, and devised the following arrangement, which was simple and efficacious. I suspended directly over the patient's groin a short round bar of iron, 8 lbs. weight, by means of a cord attached to the ceiling, and into this cord was inserted a piece of India-rubber, so arranged as to reduce the pressure of the iron to four pounds, and to steady the apparatus at the same time. A round button, about an inch in diameter, of polished mahogany, was attached to the end of the bar next the skin. All

that was necessary was to lay this upon the artery, just below the pubis, and with hardly any effort of attention the pulsation in the tumour could be kept completely and absolutely arrested. As it was hopeless to expect a patient such as mine to stand the pain, and exercise the needful restraint for any length of time, I was compelled to keep him slightly under the influence of chloroform during the whole period.

At a quarter before five, then on the 7th, the pressure was commenced and maintained perfectly for five hours. A few jets of blood, however, in spite of our efforts, occasionally passed, in consequence of the man's struggles. The pressure was then removed for a few moments to examine the condition of the tumour, when it was still found beating. During all this time Richardson's ether spray was directed at intervals on the tumour for about twenty minutes at a time, thoroughly freezing the skin over it. This was frequently repeated, until it was deemed no longer safe, as vesication, accompanied by considerable congestion of the part, took place. The compression was resumed, with the addition of forcible flexion of the knee.

After seven hours' trial of these combined methods, the tumour still pulsated, but much less strongly, and no pulsation whatever could be detected in the superficial femoral.

For eleven hours, in short, almost complete compression was kept up. The tumour, however, still pulsated, but not forcibly. The collateral circulation has sprung up, and the attempt had now to be abandoned.

The next day, the 9th, a very faint pulsation could be felt in the femoral. The pulsation in the tumour is very strong, but it feels much firmer.

On the 13th compression of the common femoral was kept up for about twelve hours by Signoroni's tourniquet, and on removal no pulsation was to be felt in the aneurism, nor did it return for eleven hours. Compression was then re-commenced, and maintained as effectively as possible until the 17th, on which day it was kept up from 8.30 a.m. till 9 p.m. On removing the compressor no pulsation whatever could be felt for one minute, and then it returned faintly. On the 21st the pressure was again applied from 9 a.m., till 5 p.m. On removal the aneurism still faintly pulsated, but during the night the pulsation suddenly and finally ceased, and there was no return so long as he remained in hospital. He discharged himself on the 9th December, and the tumour was then becoming gradually absorbed.

Several cases have been recently published by Drs. Mapother of Dublin, Murray of Newcastle, Vanzetti of Padua, and others, showing the advantages of completely arresting the current of blood through the sac in the treatment of aneurism. The treatment of aneurism by compression, a triumph which we owe to the Dublin School of Surgery, has hitherto been based upon the theory that successive layers of fibrine



were deposited in the sac, and that to facilitate the cure a certain diminished current of blood must be allowed to pass through the aneurism. If the views now put forward be correct the obliteration of an aneurism is obtained by the clotting of the blood contained in it, and its subsequent contraction and organization, procured by complete occlusion of the current, and arrest of all movement in the aneurismal sac, for a longer or shorter period of time. In one case mentioned by Dr. Mapother an ilio-femoral sac was obliterated after pressure for four hours and a half on the common iliac, combined with distal pressure on the superficial femoral. In another case of popliteal aneurism pressure on the femoral proved successful after nine and a half hours. At Newcastle an aneurism of the abdominal aorta underwent the process of consolidation in three quarters of an hour, while in another case some twenty minutes are stated to have effected complete cure. The cases reported by Dr. Vanzetti of Padua are, if possible, more striking. They are a traumatic aneurism of the palmar arch cured in thirty minutes, and an aneurism of the femoral cured in less than ten hours.

This method of treatment seems little short of a revolution of that generally accepted, and so indeed it is. In connexion with this matter I read, with great interest and pleasure, some remarks made by my friend Dr. Geoghegan at the late meeting of the British Medical Association in Dublin. He said he had been extremely intimate with Dr. Bellingham, and had seen nearly all that surgeon's cases treated by compression, and for a long series of years had strenuously contended against the principle that the true mode of curing aneurism consists in the mere diminution of the current of blood flowing through the sac. In the discussion which then took place Mr. Ernest Hart, the author of the article "Aneurism" in *Holme's Surgery*, stated "that he felt convinced that this method of rapid cure by complete compression was destined to become generally adopted as the mode of treatment, *par excellence*, of surgical aneurism, and that it was almost as great an improvement upon the slow method of treatment as compression itself was upon the method of the ligature."

In the case just narrated I believe the plan of continuous and complete compression would probably have proved immediately successful had it been more efficiently applied. We had, however, in our patient a very unmanageable person, who resisted our efforts in place of co-operating with them, and in his struggles from time to time a small jet of blood must have gained admission. The only hope of speedy and complete success is in the thorough stoppage of the flow of blood to the aneurismal sac. As it was, I believe a partial clot formed, and this, though insufficient at the time permanently to fill up the sac, proved adequate after the lapse of some days, and was the cause of the sudden cessation on the 21st. I believe the very complete manner in which the collateral circulation was established also aided, in a large degree, to protract the cure, as by that

means blood was freely supplied to the sac by the distal extremity of the vessel. No direct pressure could prevent this, owing to the situation of the aneurism filling the popliteal space, and forcible flexion could not be maintained sufficiently long to effect the same object. I should, therefore, in giving this method another trial, effect if possible compression on the efferent vessel, and if that were impracticable, try, in any case, to procure occlusion of the sac without preliminary partial compression, and without affording time for the collateral circulation to supply the sac with blood. The temporary obliteration of the superficial femoral vessel, which never again became restored in size, is an interesting feature in the case. I should mention that the application of the ether spray, which was kept up for a lengthened period each time, seemed to have no other effect than the production of a troublesome superficial slough, which left behind it an ulcer very difficult to heal. Since writing these remarks I have read a paper by Mr. Samuel A. Cusack, published in the *Dublin Quarterly Journal* for November, 1859, in which he describes an instrument of simple construction for applying graduated pressure by means of weights to the artery. He mentions that in the first case in which he tried it a cure of a case of popliteal aneurism was effected in twenty-six and a half hours. Although it is not mentioned as such, it is probable that in this instance we find an early example of the effects of complete compression.—*January 17, 1868.*

DR. CUMING read a case of *Mitral Regurgitation, independent of Organic Disease, and exhibited the recent Specimen.* This case is published in the present number of the Journal.—*January 31.*

*Cases of Strangulated Hernia.*—DR. WILLIAM MACCORMAC gave the following account of three cases of strangulated femoral hernia.

In bringing forward the history of these cases I do not expect to advance anything that is novel upon such a subject as hernia, which has so long occupied the attention of the best anatomists and surgeons. I merely wish to record the details of cases in certain respects not unimportant, and add, perhaps, a little to the common stock of knowledge. I would also wish to urge my conviction as strongly as I could that to operate early is to give the patient the best chance of recovery. Now-a-days, no surgeon would, I conceive, make repeated and forcible attempts to reduce a strangulated intestine. After a judicious and reasonably prolonged effort had been made to reduce the protruded part without operation, and had failed, there is hardly anything to justify much further delay. I have never lost a patient, nor seen any untoward symptom follow an operation from its having been performed early, while every surgeon must have reason to deplore the fatal consequences which ensue but too often from the long continuance of strangulation of the intestine.

Besides, if one form of hernia more than another requires the prompt recourse to the knife it is femoral hernia. The anatomical conditions under which it occurs sufficiently explain this fact.

CASE I.—Martha Kelly, a thin delicate woman, about forty-eight years of age, and the mother of seven children, was admitted to hospital under my care on the morning of the 26th October, 1866, shortly after midnight, with strangulated femoral hernia of the left side. The patient told that for the last twenty years she has suffered from her malady, and that it made its appearance in consequence of her lifting a heavy weight just before her confinement. Something, she said, “gave way with a crack,” and just as her child was being born she felt a similar sensation; and when she got out of bed afterwards a lump suddenly appeared. The woman states also that an abscess, which required to be opened, formed in the same situation. She had worn a truss, but the swelling often came down. There was no great difficulty at any time in returning the parts to the abdomen—into which led, the patient states, a large opening—until the 24th inst, at 11 p.m., whilst at stool the hernia came down, and the woman could by no effort of her own return it. A medical man was sent for the next day. He tried the taxis, prescribed castor oil, and the application of ice, without success. The castor oil was followed by two evacuations from the bowels, but the swelling remained as before. The taxis was then a second time tried without avail, and the patient recommended to go to hospital. My colleague Dr. Murney was present when she was admitted, and he made an effort at taxis whilst the patient was in a warm bath, but without making any change in the tumour; and as the symptoms did not appear very urgent advised an opiate and rest in bed, until I should pay my visit in the morning.

At ten o'clock, when I first saw the case, I found the patient had slept but little, her face wore a sunken, anxious look, tongue much furred, pulse 100, and weak. She had vomited three times some bilious matter. A good deal of pain was felt both in the tumour and abdomen, and the neck of the sac was very sensitive. On examining the left groin I found an oval tumour, the bulk of half a lemon, situated transversely beneath Poupart's ligament. The swelling was not tense, was nodulated, and had the feeling of containing omentum, except at one point, where there seemed to be intestine.

After a consultation, at the suggestion of Professor Gordon, an enema was given, which brought away much flatus, and the ice was reapplied. In the afternoon the patient's condition was not at all improved, and therefore I considered it expedient to operate without further delay, as strangulation had now subsisted about forty hours.

The patient having been first put under chloroform the taxis was tried, but I failed to produce the slightest effect on the bulk of the swelling.



An incision was therefore immediately made, about two and a-half inches long, in the vertical axis of the tumour, but rather to the inner side. The fascial layers were divided in the usual manner, and the sac exposed. On opening this a small quantity of serum flowed away and omentum was seen. The sac was then more freely opened, and on introducing the finger a very tight stricture was felt at the crural ring, beneath which the finger nail was insinuated with trouble. The constriction was divided with the greatest care, and with much difficulty, cutting upwards and inwards, at the junction of Poupart's and Gimbernat's ligaments. The protrusion, however, could not be returned, and on seeking for the cause it was found that the omentum was attached by old adhesions to the posterior part of the sac. These were separated with care, and another attempt made to return the parts, which proved unsuccessful, until Poupart's ligament was partially divided, the edge of the knife being directed upwards. Three sutures were inserted in the wound, a pad and spica bandage applied, and the patient removed to a warm bed, when a large opiate was administered.

That evening the patient was restless and uncomfortable. She was ordered a grain of opium and a grain of calomel every fourth hour.

The next morning I found she had slept well, and felt easy; pulse 120. She is to have chicken soup, and the pills at longer intervals.

On the fourth day, the 29th, the pulse was 110; bowels had been freely open the night before with great comfort to the patient. She had slept well, and had eaten an egg for breakfast. On dressing the wound it was found to have healed throughout by immediate union. The patient became rapidly convalescent. She was slightly salivated, having, however, taken in all five pills, each containing only one grain of calomel. The inferior angle of the wound subsequently reopened at one point to discharge a few drops of pus, but otherwise the wound thoroughly and immediately healed. She was discharged from hospital in fair health, better than she had enjoyed for many years, and wearing a light truss.

CASE II. differs from the last case considerably. The notes from which I have extracted the following account were very fully and accurately taken by Mr. Price, one of my clinical clerks. The patient was much older-looking than her real age—sixty years. She was the mother of seven children, and had evidently suffered many hardships. The hernia was of recent date, and was very small. She first noticed a lump in her groin about a month ago, when she had an attack of cramps and vomiting. Since this attack she has but seldom got out of bed, as she suffered much from nausea and constipation, with weakness and loss of appetite. The lump sometimes was felt, and sometimes not, in the groin—probably the patient did not know the importance of the local ailment.

On the 11th February, 1868, at eleven o'clock in the morning, she suddenly took ill with severe cramps in the belly, and vomiting, not being able to retain either food or drink. A medical man was sent for some time after, who employed the taxis without avail, and then she was sent to hospital, where she was admitted under my care at nine a.m., on the 14th. I saw her a few minutes after, and found her in an extremely weak condition, surface cold, face anxious, skin yellow, voice tremulous and feeble, pulse 120 and thready, tongue much coated. Since the first appearance of the symptoms she has vomited almost continuously, even on drinking cold water, and there has been no action of the bowels. In the right groin there is a little hard lump, not much larger than a cob-nut, just beneath Poupart's ligament. Great pain was felt in the part, and also at the umbilicus.

The case appeared to be one that would brook no delay. The tumour was very tense and small, the symptoms were very urgent, and strangulation had subsisted seventy hours. The woman was at once removed to the operating theatre and chloroform administered. No attempt at taxis was thought expedient, and herniotomy directly proceeded with. A vertical incision, commencing just over Poupart's ligament was made, some fascial layers divided on the director, and a lobule of fat about as large as a hazel-nut exposed. This resembled extremely a piece of omentum, and caused much embarrassment in the course of the operation. By careful isolation of the neck of the tumour this fat was shown to be external to the sac, being contained in the fascia propria. The falciform border being exposed it was divided, cutting directly upwards, and an effort made to return the hernia without opening the sac. In this we entirely failed, and it became necessary to open the sac. This was accomplished with great care and some difficulty. A few drops of dark red serum flowed, and a very small bit of intestine, almost black in colour, and completely adherent to the sac by recent lymphic adhesions, was laid bare. The adhesions were cautiously broken through with the finger and the handle of the scalpel. The director was then introduced beneath Poupart's ligament, as the finger or even the nail could not be inserted, and the stricture freed by simply pressing the knife against its edge in a vertical direction. The intestine now receded of its own accord, the thickened sac was cut away, the wound closed by three sutures, and dressed in the usual manner. With regard to the after-treatment, it may be simply comprised in the statement that the patient was let alone. No medicine was given of any kind. Soda water and ice were freely taken to relieve the sickness following the chloroform, and so soon as this had subsided the patient was given some nourishing soup. Next day, the 15th, the pulse had fallen to 90, and the countenance had lost its anxious expression. The abdomen was distended with flatus, but not tender, except in the region of the wound. The sickness

and vomiting had quite abated. On the 16th, the patient complaining of much uneasiness in the groin, the dressings were removed, and the wound was found united by the first intention throughout. The skin around had become inflamed, and was of a dark red colour. The sutures were removed, and the cicatrix yielded in the centre to the extent of a line's breadth, giving exit to nearly a tablespoonful of sanious pus.

Next day the patient was found to have been completely relieved. She had slept well, the tongue was cleaning at the edges, and the pulse fallen to 84. The skin was cool, all sickness had disappeared. No pain was felt in the abdomen, which was still, however, much distended with flatus.

On the 20th, the seventh day after operation, the patient's general condition is reported very satisfactory. A small quantity of rather fetid pus was daily discharged from the wound, which was syringed out with carbolic acid lotion with great advantage. The bowels had not been open since the operation, and an enema of soap and water was directed to be given. A plentiful discharge of both feces and flatus followed, to the great relief and comfort of the patient. On the 22nd February the patient was pronounced convalescent. She eats, drinks, and sleeps well. The bowels had been moved naturally, and the wound was secreting a few drops only of healthy pus. Soon after she was discharged from hospital quite cured of her hernia. She was, however, advised to wear a truss.

CASE III., extremely interesting in many respects, proved a fatal one, and a *post mortem* examination was obtained. We have in this instance an illustration of the most forcible kind of the disastrous results of delay in procuring relief for a strangulated intestine, and an example given where the symptoms merely of disease were treated, and the cause of those symptoms completely overlooked. The account of the case is taken from the very faithful notes of Mr. Chambers, clinical clerk.

Mrs. G., thirty-two years of age, the mother of several children, was admitted under my care on the evening of Friday, February 28th. She had previously enjoyed an immunity from all serious illnesses, but had never been very strong. Between two and three years ago she first noticed a little lump in the left groin, which came and went at intervals, and was occasionally attended by cramps and pain. For three months the menses had disappeared, as she had again become pregnant, and during the 6th, 7th, and 8th of February she suffered from profuse hemorrhage and other symptoms of miscarriage. The bleeding from the vagina continued until within three days before admission, reducing her to a very weakly state.

On Friday, February 21st, whilst washing, and having to make considerable exertion, the lump in the groin suddenly increased in size and



became very painful, while shooting pains were felt extending from it through the abdomen. The next day she was much worse, the pain had increased in severity, and assumed a constricting character at the umbilicus. She began to vomit, and from Saturday the 22nd, at 2 p.m., all food and drink was rejected by the stomach. The bowels were constipated, not having been relieved since Friday morning. On Sunday a medical man was called in, who prescribed her a mixture for the purpose, she stated, of checking the vomiting and opening the bowels. Different mixtures were from time to time ordered, also Seidlitz powders, sinapisms, turpentine stupes, and linseed poultices, and all without affording any relief. Matters proceeded from bad to worse until Friday morning, the 28th, when the patient herself called attention to the presence of a tumour in her groin, which on examination proved to be a hernia, and the cause of the symptoms. Shortly afterwards the woman was sent to hospital.

On admission the patient presented the appearance of a person forty-five years of age. Her face was shrunken in all its features, pale, wrinkled, and very anxious, the angles of the mouth drawn down, the surface was quite cold, the extremities clammy, and the hands blue. The respirations were 25 per minute, the pulse was 120, and almost imperceptible. In short, nearly complete collapse had taken place. The intelligence was perfect. There was little or no local or general tenderness on pressure. The woman complained only of deadly sickness. The vomiting has continued without intermission since the commencement of the symptoms, and the matter ejected is now of a most offensive description, being intolerably fetid. The tumour lies below Poupart's ligament, which it slightly overlaps. Its long axis is transverse, and measures two inches and a-half, while from above downwards it is about one and three-quarter inches. There was no tension, and, as before stated, little or no tenderness evinced on pressure.

My opinion was that the taxis should not be attempted, and that an operation, although the result was hardly doubtful, should be attempted. After some chloroform had been administered an incision, nearly vertical, was made over the tumour, and after dividing several layers of fascia a dark fatty tumour, the size of a walnut, and quite smooth and glistening upon the surface, presented itself. It was extremely difficult to decide as to whether this was a mass of omentum or not. I considered, however, after a careful examination of its appearance and relations, that it was only thickened sac, and proceeded to divide it on the director. Two lines depth of tissue were cautiously divided, and the intestine became visible, completely adherent to the sac by recent lymph. No serum escaped. The adhesions readily gave way before the handle of the scalpel, when the incision into the sac had been enlarged, and a small knuckle of the intestine was exposed, almost black in hue, but it had not

lost its resilient appearance or glossy surface. The stricture was relieved by pressing Sir A. Cooper's knife against some fibrous bands felt with the finger, and dividing them almost directly upwards. The stricture was comparatively superficial and easily divided, and there was no bleeding. The intestine was readily returned. Sutures were now inserted, and the wound dressed.

The patient was then removed to bed, surrounded with warm water jars, and given ice to suck.

Next morning the report is that there had been no vomiting since the operation, but the surface was still cold. She has had a continual desire to go to stool, and feels as if she had frequent motions in the bed, no assurance persuading her to the contrary. She has been very restless, constantly tossing about, and throwing the clothes off her. She was ordered to continue the ice, to have four ounces of port wine, a few spoonfuls of soup occasionally, and in addition a grain of opium every third hour. She afterwards got more wine and opium, and in addition hot punch, combined with the warmth externally.

The next day, in spite of all that could be done, the collapsed condition increased, the pulse became slower and slower, and weaker and weaker, till it ceased to be perceptible. The surface became stone cold. The jactitation was excessive, and painful to witness. She complained of no pain, and answered questions slowly but with intelligence. Towards the last there was some muttering delirium. She finally sank some thirty-two hours after the operation. If the fatal result was not retarded, it certainly was not hastened in any way by the surgical proceeding.

A short time afterwards a *post mortem* examination was procured. The parts involved in the operation were carefully dissected and the falciform border of the fascia lata exposed. It was then seen that Hey's ligament had been divided for about two lines depth, upwards and very slightly inwards. Neither Poupart's nor Gimbernat's ligaments had been touched. The crural ring barely admitted the forefinger. On laying open the abdominal cavity the small intestine, greatly distended with gas, bulged out. The crural ring was closed by a coil of comparatively healthy gut, whilst the portion which had been strangulated was discovered removed about three inches to the right side of the opening. The whole intestine seemed injected and inflamed, but there was very little effused lymph and no serum contained in the cavity of the abdomen.

About three feet of small intestine were now carefully removed for subsequent examination. Towards the lower portion of the ileum the seat of strangulation was clearly seen. About two-thirds of the circumference of the bowel at its convexity was sacculated, a deep sulcus forming its boundary. The part appeared as if it had been tightly tied by a cord, and afterwards set free. More lymph was seen near this than elsewhere, and the included portion was quite black. There was

no sign whatever of extravasation, and in fact none had occurred. The amount of congestion and inflammation of the bowel was much more intense below this point than above it. The intestine was now opened along its mesenteric attachment. At the seat of stricture, for the greater part of its extent, there was a projecting rim caused by the constriction, but through a distance of about half an inch at two places, the mucous and muscular coats had completely ulcerated through, nothing remaining but the serous, which was quite translucent. At one point for a line's breadth the serous coat also had given way, but it must have done so during the process of removal.

In the first of these examples the hernia was of ancient date, the opening through which it came was comparatively large, and the symptoms which followed strangulation were not very acute. It was proved during the operation that there was an impossibility of effecting any good by the taxis, or of reducing the hernia, except *en masse*, without opening the sac. The patient, too, had most confidently asserted, and, as she had suffered from rupture for twenty years, it might be presumed she ought to know, that the hernial protrusion completely disappeared when she lay in bed, and that she could pass her finger up through a large sized hole into the belly. The adhesions discovered during the operation were old and required a careful and troublesome dissection to liberate the parts. It was only too after a free division of the ligamentous structures composing the crural ring that reduction could be effected without force. It requires but little consideration to arrive at the conclusion that it is better to incise the site of stricture as often and as freely as may be necessary rather than handle the intestine much, or attempt to squeeze it through an insufficiently relieved stricture. Of course, for the future strength of the abdominal wall, it is important to make the incision as limited as possible, but at worst a free incision will result in a mere infirmity, whereas much manipulation of the contents of a rupture, morbidly inflamed as they usually are, is a source of extreme risk to the patient's life.

In the second case the hernia was quite recent, and the symptoms complained of by the patient were much more urgent. I only feared that, after the length of time that had elapsed from their commencement, I might find the intestine irretrievably damaged. A few hours will, as we know, in some instances suffice to produce mortification of the gut.

In neither of the first two cases could reduction be accomplished until the division of the deeper structures was effected. In neither was the falciform border the constricting cause.

The third case forms a striking contrast to the others. It may seem almost unnecessary to dwell upon the importance, the absolute necessity in fact, of determining the presence or otherwise of hernia in cases of vomiting



and constipation. In this instance, however, the medical man was not aware during a period of six days that there was a rupture, and the woman was treated by means calculated to benefit her, perhaps, had the cause of her malady been other than what it was, but only tending to injure seriously her chances of recovery from strangulated femoral hernia. Besides, much valuable time, which is a matter of greatest importance, was lost. I would wish to add that it is not sufficient, especially with those in the humbler ranks of life, simply to inquire if there be a lump in the groin, and rest satisfied with the patient's assurance that there is none. Oftentimes persons of this class are liable to overlook, or attach little importance to, the presence of such tumours, and even if of long standing, will sometimes forget or ignore their very existence. We know, too, how far feelings of false delicacy will carry some women. Nothing save a careful examination made with one's own hands, and eyes if needful, will suffice.

The examination of the parts after death renders this case doubly interesting. The evidences of general peritonitis were distinct, but not to so large an extent as I have frequently seen them. The patient seemed rather to die from the collapse induced by the disease, and her state, weakened as it was by the recent abortion, did not offer the same amount of resistance and power of reaction.

The woman did not, I consider, die of the operation, which did not seem to affect much the progress of her case in any way, save by giving relief from the vomiting. The way in which she died appeared to me almost identical with that in a fatal case I witnessed of strangulated femoral hernia where no operation had been performed. In both instances intense restlessness and jactitation, pervading coldness, muttering delirium, from which the patient could be aroused, and comparative absence of local tenderness and pain were very noticeable.

I send round a preparation of the intestine at the strictured part; it shows very beautifully the primary yielding of the mucous and muscular coats of the bowel. The thinned layer of serous membrane still remaining could very easily have been ruptured had any great effort to reduce the tumour by the taxis been employed.

In Mrs. G.'s case the falciform border alone was incised in an upward direction, and very slightly inwards. Vidal insists that this forms the constant cause of strangulation. Dupuytren must have thought the same, for he cut upwards and outwards, while Guthrie and Velpeau cut directly upwards, when relieving the stricture.

I performed a somewhat similar operation, in every instance, by means of an almost vertical incision, inclining slightly towards the umbilicus. The stricture was incised in nearly the same direction as the external wound. By avoiding all cutting or sawing motions, and simply pressing the edge of the knife against the tense fibrous tissues no risk of injuring an important part can occur.

A circumstance pointed out by Key was very well marked in the two latter examples. In both a quantity of fat, simulating the omentum very closely, was contained in the layers of the fascia propria, and it was a very difficult matter to discover what it really was.

The more one sees of hernia, and especially of femoral hernia, the more, I think, one becomes impressed with the necessity for early operative interference. It is not the operation, but the want of operation that proves fatal. Ill directed, and too often repeated efforts at taxis, conjoined with unnecessary delay, are only too frequently the fatal elements present in hospital cases of hernia.

I opened the hernial sac in all three examples, and the condition of the contents proved that it was best to have done so. The advantages of opening the hernial sac are great and apparent, whilst any proportionate disadvantage accruing from such a course is, to me at least, by no means so plain.—*March 6, 1868.*

DR. HILL read a paper *On a Case of Suppression of Urine complicating Pregnancy*, of which the following is an abstract:—

M. B., aged thirty-five years, mother of six healthy children, had a severe attack of some chest affection, from which she never regained her former strength. Shortly afterwards she became pregnant, and when about four months gone she experienced pain in making water, at the same time passing very little. The symptoms gradually increased in urgency, notwithstanding various methods of treatment, till the pain prevented her from sleeping, and she did not pass more than three ounces of urine in the twenty-four hours, which, however, latterly became highly concentrated. She did not complain of cough, though otherwise she presented a phthisical aspect. At seven months labour occurred, with complete relief to her urgent symptoms, but immediately phthisis became developed, and she sank twelve days after delivery. The case was adduced as one showing the remarkable power which pregnancy possesses of keeping the symptoms of phthisis in abeyance. No explanation of the pain could be offered, but Dr. Smith, who had seen the case in consultation, suggested that it might have been caused by the irritation of the bladder by the concentrated urine.—*March 20, 1868.*

TRANSACTIONS OF THE COUNTY AND CITY OF CORK  
MEDICAL AND SURGICAL SOCIETY.<sup>a</sup>

SESSION 1866-67.

DR. JOHNSTONE, President, in the Chair.

*Specimen of Phthisical Cavity in Right Lung, with Notes.* By JOHN WALL, A.B., M.D., L.R.C.S.I.; Physician to the Cork Workhouse Hospitals.

HUGH WARD, aged thirty-one, admitted into the Cork Workhouse Hospital, September 7, 1867. History—Is of a healthy family; had been for thirteen years a soldier in the 24th Regiment; got a severe wetting at a field day in the Curragh twelve months ago, and was then admitted into the military hospital suffering from hemoptysis for the first time; health previously excellent. He remained two months in hospital, where he said he was treated for pleuritis, as he complained of a stitch in his right side.

At the expiration of that time he was discharged, apparently quite cured. Whilst going to Liverpool as a deck passenger he unfortunately got a second severe wetting, which brought on a return of the hemoptysis next day. He was transferred to the depot Hospital, where he remained a month, and was finally discharged the service.

He states that he lost much flesh since the commencement of his illness, and is latterly a good deal annoyed by night sweats.

At the beginning of his sickness the decubitus was on the left side; now it is altogether on the right.

Present symptoms (September 9).—Presents the usual hectic appearance; right side intensely dull on percussion, both anteriorly and posteriorly. Pulse 108, small and feeble; large crepitation and bronchophony distinctly audible in the right infra-clavicular region. tubular breathing, prolonged expiration and bronchophony recognizable in mammary region; dulness not so well marked posteriorly; crepitation present in supra-clavicular region; puerile respiration audible in every part of left side; well marked nummular sputa; no diarrhea; percussion sound, almost tympanitic, on left side as compared with right.

November 14.—The disease has made considerable progress since last examination.

November 16.—Died this morning.

*Post mortem.*—Upon removing the sternum a considerable quantity of fluid escaped from the cavity of the pleura; there was also a deposit of recent lymph on the pericardium, evidently the result of inflammation

<sup>a</sup> These reports are supplied by Dr. Purcell, Secretary to the Society.



immediately preceding death. The right lung was intimately adherent to the corresponding pleura costalis, from which it was detached with considerable difficulty; it had shrunk to nearly half its normal size, felt almost cartilaginous to the touch, and was everywhere coated with a thick layer of false membrane. The upper lobe contained an abscess capable of holding two ounces of purulent matter. The remainder of the lung was infiltrated with tubercle. The left lung contained some crude tubercles at its apex, and what appeared to be the cicatrix of a former abscess. The anterior portion of both lobes were emphysematous to a certain extent. The base and roots were much engorged. Some false membrane existed in the latter situation.

*Specimen of Periprostatic Abscess, with Notes.* By JOHN WALL, A.B., M.D., L.R.C.S.I., Physician to the Cork Workhouse Hospitals.

OWEN GEARY, aged seventy-nine, admitted into the Cork Workhouse Hospital, October 30th, 1867. He is an extremely feeble old man. I found it difficult to get a satisfactory history of his case, owing to his deafness and imperfect knowledge of English. However, I was able to ascertain that he suffered from "*stillicidium urinæ*" for several years, and latterly was unable to retain any urine at all. In this state I first saw him. I endeavoured to pass a catheter, but failed, with several sizes; and as he passed water freely, and there being no other symptom calling for immediate action, I contented myself with fomenting the abdomen and watching the quantity of water passed until my evening visit same day, when I discovered that urine to the extent of some pints had been voided in the meanwhile. For the next few days he progressed favourably, with the exception of a rather severe attack of rigors, the urine being all through passed freely, but highly charged with blood, and of offensive odour.

Nov. 9.—Complains to-day of difficulty in making water, the quantity passed being much smaller than usual. I also discovered some duskiness about the scrotum. I therefore passed a French catheter, corresponding to about size No. 6, with considerable difficulty, into the bladder, and secured it to the glans penis.

Nov. 10.—The duskiness has much increased in the scrotum; the parts were therefore freely incised, fomentations and poultices being subsequently applied.

Nov. 11.—Is evidently sinking fast; died same night.

*Post mortem.*—Bladder and penis extracted by sawing the pubic arch; the former was quite a typical example of "*concentric hypertrophy*," its coat being extremely thickened, the cavity so diminished as to be capable of containing only three ounces of fluid. A small diverticulum was observed posteriorly, and to the right; mucous membrane very vascular

and rugous. A small abscess, capable of holding three drachms of pus, lined by a distinct pyogenic membrane, was situated in the neck of the bladder, immediately overlapping the prostate gland. This must have evidently, to some extent, at least, occluded the corresponding portion of the urethra, which latter, together with the membranous part, appeared healthy. But the mucous membrane of the spongy portion, at its two posterior thirds, was quite blackened by extravasated blood. Upon the closest inspection I was unable to discover any rupture, although I feel quite confident that some such lesion must have taken place during life, as the scrotum had an almost sphacelated appearance for about twenty-four hours before death, the parts being entirely without sensation, the skin peeling off on the slightest touch, and emphysematous. Where the incisions were made a thin, ichorous discharge flowed, somewhat resembling the urine in colour.

*An unusual Case of Supra-patellar Bursa.* By H. R. HADDEN, M.D.,  
F.R.C.S.I., Clonakilty.

THOMAS BENNETT, aged fifty, sawyer by trade; twelve years since noticed a swelling on the top of his knee, on which he was obliged to bear a good deal in the exercise of his trade; perfectly painless until he injured it by a fall in June, 1861, when it got suddenly swollen and bluish-looking, requiring leeches to subdue the inflammation. In two years afterwards he got another fall, which was followed by a still further increase in size and tenderness, for the reduction of which a cold lotion of vinegar and water sufficed. About two months before its removal, last winter, got a third fall, after which matter gathered between *its anterior wall* and the skin. After poulticing it opened, and from the distension of the contained bursa, I suppose the opening enlarged till it presented the appearance which you may remember, as, on its removal, I sent it in, with a few rough notes, to your society. It was about the size of a large orange, and had very much the outline of the fetal head presenting through a moderately-dilated and tumid os uteri. Before its removal I perforated its walls in two places with an exploring needle, when from each opening a tiny stream of bright blood jetted out to a distance of two inches at least, and was only stopped by continued pressure. Immediately after I removed the tumour by two elliptical incisions, including all the infiltrated skin which covered it; it was easily dissected off the patella, leaving a very clear healthy surface, when I found, to my great satisfaction, that the motions of the knee were perfect and painless. When cut open I found it to contain, as you saw, a number of cellular spaces divided from one another by fibrous, cartilaginous walls, all containing effused blood in various stages of organization—no doubt the result of the successive injuries. The man is

now, nearly a year after operation, perfectly well, both legs equally useful, and working away vigorously at his trade.—November 27, 1867.

*Cystic Sarcoma of Breast.* By H. R. HADDEN, Esq., M.D., F.R.C.S.I.,  
Clonakilty, County Cork.

JANE CONNELL, aged sixty, married; has borne several children; youngest twenty years old. For some years has noticed the right breast heavier and somewhat larger than the left. Two years ago became more decided, but at this time it was neither painful nor tender, except on squeezing it roughly. Nine or ten months since she received a blow on it from her grandchild's head, when it increased in tenderness and size more rapidly. About April last she consulted me at the dispensary, when it had all the characters of chronic mammary tumour and none others, for which I used the ordinary treatment, with aloetics and stimulating liniment containing iodine, with attention to her general health. After some months she disappeared and escaped from my notice. At this time the tumour was certainly a little smaller, and less tender than at the commencement. About the first week in November she returned, when I found that for some months she had been using various poultices, under the advice of "old women," in order "to bring it to a head." The diseased breast had now assumed a completely different character, a large cyst, apparently multilocular, bulging forward on the anterior and outer aspect of the tumour, having a bluish colour and distinct fluctuation, and springing, as was evident on careful examination, out of the substance of the old chronic mammary tumour. It was now exceedingly tender and painful from the distension, to relieve which, and to convince her that it was not matter it contained, I tapped the cyst, and removed some ounces of the deep straw-coloured serum it contained, at the same time advising its speedy removal, as I saw her health had become decidedly impaired, her sleep being greatly disturbed, and her appetite very bad. The tapping gave her much relief, but at the end of a week she again presented herself, begging for a repetition of it, to which I yielded, again urging the operation, which I now felt was the only means of saving her life. To this she submitted on the 13th of this month (November). There was nothing particular in the mode of its performance; the elliptical incisions were made as much as possible in a line with the fibres of the pectoralis major, and then brought together; their line measured 13 inches, one end running into the axilla, the other to the sternum. In removing the tumour a few fibres of the pectoralis had to be taken; its weight before the fluid escaped was four pounds. Towards the close of the operation she had a narrow escape from death by chloroform, respiration having *suddenly* ceased; but having grasped her tongue with a hook, and drawn it forward, artificial respiration was used, when natural breathing was re-established. On the third day the whole of this extensive wound,



except about an inch in one place and half an inch in another, where the five ligatures escaped, was healed, and now at the end of fourteen days there is but a slight oozing from the axillary end of the incision. The woman is in good condition, free from all suffering, and will be ready to be discharged in a few days, thank the Lord. On cutting open the tumour by the incision you can see on its posterior surface, I found that the cavity of the cyst was spanned by a number of papillary growths which had sprung from its walls, and which, before I severed them, very much resembled the muscoli papillares of the cardiac ventricles; it also contained a thick pasty material, which, on examination with the microscope, closely resembled the so-called inflammation corpuscles from softened brain, depicted in Figure 184 of Dr. Beales' book on the microscope. A section of the hard, white substance from which the cyst sprung, presented only the characters of hypertrophied mammary structure. Whether this cyst was really multi or mulocular, and whether it was developed by the obstruction of the lactiferous tubes in the areolar interspaces, or by the degeneration and absorption of the tumour, I did not make a sufficient dissection to determine, not wishing to spoil it till it was laid before the next meeting of the Cork Medical and Surgical Society.—*November 27, 1867.*

Reported by W. C. TOWNSEND, M.D., Senior Physician to South Infirmary and General County Hospital.

DURING the months of September and October several cases of erysipelas attacking children came under my notice; all, with one exception, did well, but there were some remarkable features in some of them deserving consideration.

First, all the cases occurred in children between the ages of six and ten; two were of the inflammatory type, and got well on the use of alterative aperients and diaphoretics, with the local application of powdered starch, the disease running its course in ten days without any untoward symptom.

Two occurred in children, of a highly strumous diathesis, sisters, one nine, the other seven. The elder was first affected. An interval of several days took place before the second was attacked. Both required much support, and the disease in each case yielded to repeated doses of tincture of perchloride of iron. The convalescence was extremely tedious, and followed by, in one of the children, strumous abscesses in the neck and back of the ear.

The history of the fatal case was as follows:—On the evening of the 26th September I was sent for to see Master S., aged about ten. I found him in bed, suffering from erysipelatous inflammation of the forehead, nose, and upper portion of both cheeks. He was feverish, but not remarkably so; his pulse was quick; tongue coated; skin dry; but he

did not complain of his head. On inquiry I found that he had been complaining for the last two days, occasionally sitting before the kitchen fire, but it was only the evening before the local symptoms made their appearance. He was ordered stupes to the feet, an aperient at bed-time, and a mixture of citrate of potash at intervals of three or four hours. The face, nose, and forehead to be dredged with starch powder diluents.

September 29th, morning.—Spent a good night; bowels acted freely; the secretion from the kidneys high coloured, but sufficient; does not complain of his head, but rambles occasionally; the erysipelatous inflammation has extended to the scalp; tongue moist; no thirst; has taken a good deal of diluents. On feeling the pulse I observed it was, considering the other symptoms, less frequent and somewhat laboured; ordered small quantities of chicken broth; frequent mustard stupes to the feet; the hair to be removed; citrate of potash to be continued, &c. Evening.—Wanders a good deal, but knows every one; the other symptoms continue same as the morning; pulse still rather slow and laboured. I learned then for the first time that about a month previously he got a severe fall on his head, while playing on the steps of a house at the opposite side of the street, but from the effects of which he did not complain, nor was there the slightest mark or abrasion; ordered an alterative aperient, mustard stupes to be continued to be sustained as before.

September 28th, 8 a.m.—Spent a restless night; well marked stupor; but on being roused knows his mother and those about him; drinks freely, but immediately relapses into stupor; kidneys and bowels acted freely; pulse slow and laboured; pupils act; no rigors; head to be shaved; blister to the pole; turpentine enema. 12 o'clock.—Professor O'Connor saw him with me; stupor increased, but still, on being roused, is conscious, and knows his mother; ordered one grain of calomel and five of nitrate of potash every hour; blister to remain on the pole; stupes to feet to be continued; to be supported freely with broth and arrowroot. 4 p.m.—Continues in much the same state, except the stupor, which is decidedly increased; pulse slow and laboured; does not recognize any one. 8 p.m.—Professor O'Connor saw him with me again; he raves a good deal, but does not know any one except his mother; drinks badly; bowels and kidneys act well, but passes everything involuntarily; pulse still slow and laboured; pupils act well; ordered mustard sinapism over the heart; other treatment to be continued.

29th, 8.30 a.m.—He still continues in much the same state; his mother states that he recognized and called her; mutters occasionally; pulse still slow and laboured; drinks badly, and lies on either side; ordered head to be covered with straps of blister. 12 o'clock.—Sinking; died towards evening; no rigor from first to last; no *post mortem* allowed.

I frequently meet cases of erysipelas in very young children and infants, but rarely between that period and adult life. I have never seen

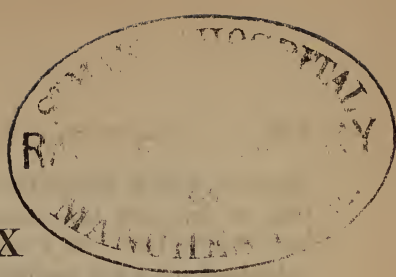
a case of erysipelas in a child of the same age and fatally, and with the same train of symptoms. In this case there was no metastasis, as the erysipelatous inflammation of the nose, face, and upper portion of the forehead still continued. The inflammation evidently extended to the membranes of the brain, and terminated by suffusion. A question would arise in this case as to whether the fall on the head, a month previously, from the effects of which he never complained or appeared to suffer, may have exercised any influence on the production of the attack, or its being present rendered the membranes of the brain more susceptible than ordinary of inflammation.—*January 26, 1868.*

*Case of Fatty Tumour.* By FRANCIS M. LUTHER, M.D., Cappoquin.

NOVEMBER 1st, 1867.—Consulted by Mrs. Owen Keefe, of Barrack-street, as to how a very large tumour, on the back of her neck, and scapula could be removed. She had some years before consulted me for slight and transitory œdema of her legs. I saw her but twice on that occasion. When she mentioned the site of the tumour I thought it most likely to be a lipoma, but on examination I found that it was not lobulated, but, on the contrary, quite smooth and elastic to a high degree. I concluded that its contents were fluid, and not merely that, but liquid as serum, rather than glairy, like the usual contents of a cyst. Perhaps the woman's own expressed conviction, that it was full of "boiling water," contributed to mislead me, as I have known such statements to prejudice wiser men. Thinking to effect a cure by tapping and iodine injection, and having obtained Mrs. Keefe's consent, I tapped the tumour, directing my assistant, the dispensary portress, to grasp it with both hands and keep it tense.\* As I did so I remarked that it was more common to find fatty tumours on the neck than any other. To my intense chagrin neither serum nor blood issued through the trocar. Fancying that viscosity in the contents of the cyst might account for this, I pierced the tumour in another place with same result. Being now aware of my mistake, I made an incision into it, and yellow fat started up through it. I told the patient and bystanders that it proved to be a very innocent tumour, only formidable from its bulk, and that I would remove it on the spot. Although much alarmed, the woman permitted me to do so, as it made her life miserable. Making two incisions crossing each other, I dissected off the skin flaps, which I found very tedious. I tried occasionally to loosen the tumour with my fingers, but could not do so. The handle of my scalpel was of no use, as it was one that folded up. The lobules were tightly compressed like brain convolution, and prolongations of fascia dipped between them. The tumour was large (it weighs two pounds), and towards the end of the operation I bisected it, in order to facilitate its removal. No vessels needing ligature entered it, but the skin bled freely, owing, perhaps, to my giving the patient two or three



glasses of wine to sustain her waning courage. My assistant in drawing back the flaps with her fingers, of necessity bruised them. I ought to have directed her to use a tenaculum or forceps. The flaps were very redundant, and I was tempted to cut off a small portion which overlapped considerably. Putting them in such apposition as I could, I applied water dressing. Next day the flaps were thick, swollen, and red, the border of one presenting a livid blue line of slough, owing probably to over-manipulation. There was slight fever, and very transient delirium. Warm water dressing, and a blue pill and Seidlitz powder. Next day slough extending a little; chlorinated dressings. In a week a small slough separated, and the skin recovered its natural hue, or nearly. In a month no trace of the operation remained, except four red cicatrical lines. She told me she had been taking jalap for ten days before to remove œdema! I have not tested urine. She has no cardiac affection.—  
*January 29, 1868.*



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